Adult Perpetrated Animal Abuse: The Role of

Maladaptive Emotion Regulation

By

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Declaration

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Publications

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Acknowledgements

Table of Contents

List of Tables

List of Figures

Abstract

Animal abuse is a prevalent form of aggressive behaviour that inflicts pain and suffering onto animals and families alike. Despite this, research and theory focusing on the motivations for such behaviour appear to be sparse and limited in development when compared to other types of offending behaviour, such as interpersonal violence. The current thesis investigates the general hypothesis that maladaptive emotion regulation facilitates animal abuse perpetrated by adults. We focus on two specific emotion regulation styles that have been implicated in existing literature; that is, the mis-regulation and under-regulation of emotions. Based on existing research and theories, this thesis explores the facilitative role emotion regulation plays in the perpetration of animal abuse.

In this thesis, a new conceptual framework is presented, based on an existing process model of emotion (Gross, 1998), elucidating the role of adopting different emotion regulation strategies in animal abuse perpetration. Studies 1 and 2 explore the sociodemographic and psychological factors (i.e., self/emotion-regulation) identified in the existing literature in animal abusers, violent offenders, and non-offenders. Study 3 is a qualitative exploration of emotion regulation throughout the offence process. Participants who indicated they had engaged in animal abuse behaviours twice or more were asked to describe their thoughts, feelings and emotions throughout the perpetration of the abuse. Study 4 presents the development and validation of the Whack-a-Pet (WaP) 'game'; a behavioural proxy of animal abuse. The final two studies (Studies 5 and 6) were experimental in nature. They involved inducing emotion regulation strategies to see their effect on indicators of animal-directed aggression.

Taken together, the results from this thesis support the notion that maladaptive emotion regulation strategies are pivotal in the expression of aggression towards animals. Specifically, the findings show that people who have difficulties with cognitive reappraisal

and/or employ suppression techniques are more likely to be aggressive towards animals. The findings of this thesis also highlight further emotion regulatory (anger rumination) and appraisal (animal-oriented empathy) factors that facilitate this behaviour. The thesis concludes with a discussion of methodological limitations, practical implications of the findings, and suggestions for future research.

OVERVIEW OF THESIS

Chapter 1 introduces an original application of emotion regulation to the specific context of adult perpetrated animal abuse. It is noted that despite being an important factor, emotion regulation has so far been overlooked in animal abuse research. Drawing upon the General Aggression Model (Anderson & Bushman, 2002) and the process model of emotion (Gross, 1998), a new conceptual framework is presented, outlining how each unique style of emotion regulation contributes to the specific behavioural outcome. These outcomes mimic the two styles of animal abuse taken from the literature; direct (i.e., the target of aggression is the perceived provocateur) and indirect (i.e., displaced aggression towards an animal).

In Chapter 2, the sociodemographic and psychological factors (self/emotion-regulating) which distinguish animal abusers from violent offenders and non-offenders are explored. The chapter reports two correlational studies (Studies 1 and 2) which highlight the important developmental factors unique to animal abusers; namely, emotional neglect and physical neglect. In relation to the self/emotion-regulating factors that distinguish animal abusers from violent offenders, animal empathy and anger rumination are found to be important. Specifically, the relationship between emotional neglect and animal abuse was mediated by anger rumination (Study 1). Deficient cognitive reappraisal was also found to be a unique predictor for animal abusers, in comparison with other types of offenders (Study 2).

Chapter 3 presents the first ever animal abuse offence chain that takes into consideration the thoughts, feelings, and management of those feelings/emotions at the various stages of perpetration. Respondents reported engaging in animal abuse as a result of *frustration*, *fear*, *anger*, and acting on *impulse*. The emotion-fuelled nature of this behaviour is further evidence by their negative emotional reactions to their own behaviour (i.e., *sadness*, *regret*, and *guilt*). The findings from this study (Study 3) are discussed in relation to the existing literature, the conceptual framework (see Chapter 1) and the findings from Studies 1

and 2, providing further support for the importance of emotion regulation in the perpetration of animal abuse.

Chapter 4 describes the development and validation of the Whack-a-Pet (WaP) 'game' (i.e., a behavioural proxy for aggression towards animals) to facilitate experimental exploration of the psychological mechanisms that facilitate animal abuse behaviour (Study 4). The WaP is a newly devised behavioural tool, whereby participants hit images of cats and dogs, or a control stimulus with an animated mallet as they appear sporadically on a computer screen. Correlational analyses demonstrate good evidence for the new measures' convergent validity.

Chapter 5 presents two experimental studies (Study 5 and Study 6) conducted to investigate the impact of different emotion regulation on individual differences in aggression towards animals (inferred by the WaP; Study 5) and self-reported animal abuse proclivity (direct versus indirect; Study 6). In exploring the underlying causal relationship of these variables, the emotion regulation strategy utilised was manipulated in each study. Depending on condition, participants were instructed to engage in suppression, reappraisal, or given no instructions at all when watching emotion eliciting film clips, before reporting their proclivity to engage in animal abuse, or complete the WaP game. Anger rumination was linked to lower reaction times in the WaP game (indicating increased hostility), and the magnitude of this negative correlation was intensified when individuals utilised suppression as an emotion regulation strategy. Study 6 demonstrated developmental and emotion-regulation related distinctions between the two types of animal abuse. Specifically, direct animal abuse propensity was uniquely predicted by childhood emotional abuse, emotional toughness towards animals, and non-planning impulsivity; whereas, indirect animal abuse propensity was uniquely predicted by childhood emotional neglect and emotional toughness towards animals.

In Chapter 6, the findings of the current research are summarised and directions for future research are presented. The background and aims of the thesis are re-emphasised, before providing an overview of the findings from each of the six studies. This is followed by a discussion of the theoretical and practical implications of this research. Finally, the methodological limitations are highlighted, along with future research avenues which aim to address these.

CHAPTER ONE[1]

Animal Abuse as an Outcome of Poor Emotion Regulation: A Preliminary Conceptualisation

Introduction

Animals are easy targets for interpersonal affection and aggression which places them as the most vulnerable in our society. When people harm animals, the abuse is underreported and convictions are rare (Ascione & Arkow, 1999; Daly, Taylor, & Signal, 2014; Levitt, Hoffer, Loper, 2016; e.g. RSPCA, 2009). Unlike most violent crimes committed against people, animal abuse is difficult to prosecute because its victims are voiceless. As such, it is challenging to gauge its prevalence and, in response, develop any effective prevention or intervention strategies (RSPCA, 2009). Understanding the factors and processes that can explain animal abuse behaviour has significant implications for research and practice because, for example, animal abuse is significantly correlated with other types of offending behaviour, including interpersonal violence (Baxendale, Lester, Johnston, & Cross, 2015; Coston & Protz, 1998; Flynn, 2011; Hensley, Tallichet, & Dutkiewicz, 2012; Vaughn et al., 2009; Walters, 2014). It has also been recognised as an indicator for more serious mental health problems and social skills deficits (Lockwood, 2002). On reviewing the animal abuse literature, there are some indications of regulatory processes at play given the emotional contexts in which this abuse typically occurs (e.g., Alleyne & Parfitt, 2017). For example, rejection sensitivity, emotional attachment, empathy deficits and emotional violence have all been associated with the perpetration of animal abuse in the literature (Flynn, 2000; Gullone,

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2012, 2014; Gupta, 2008; Hardesty et al., 2013; Simmons & Lehmann, 2007; Strand & Faver, 2005). Nonetheless, animal abuse has yet to be fully conceptualised within an emotion regulation framework.

Drawing from the wider offending literature, emotion regulation has become one of the primary treatment targets in reducing reoffending (Bowen et al., 2014; Garofalo, Holden, Zeigler-Hill, & Velotti, 2016). There currently exists no single definition of emotion regulation, however, it can broadly be described 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, pp. 215). For example, research has found that offenders with maladaptive emotion regulation styles are more likely to have an extensive history of aggression in comparison to those with adaptive regulation styles (Roberton, Daffern, & Bucks, 2014). Findings such as these are incorporated into rehabilitation programmes aimed at reducing violent offending, specifically by including emotion-related modules.

To offer one specific example, deficient emotion regulation has been identified as a causal factor in pathways to sexual offending (Polaschek & Ward, 2002), as well as recidivism (Hanson & Morton-Bourgon, 2005). These findings offered an evidence base to implement changes to existing treatment programmes. As a result, it is recommended to incorporate mindfulness exercises in sexual offender treatment programmes (Gillespie, Mitchell, Fisher, & Beech, 2012), and the preliminary results more broadly are promising for both male and female offenders (Samuelson, Carmody, Kabat-Zinn, & Bratt, 2007). Given that animal abusers share many social and psychological characteristics with other types of offenders (Ascione, 1999), we might hypothesise that they may also have similar issues with emotion regulation at some point during the offence process.

Based on this, we propose a conceptual framework to structure our understanding of why and how some people harm animals. So, in this chapter, we examine the available

research on animal abuse in relation to the underlying emotional components that facilitate this offending behaviour. Our primary argument is that animal abuse is an outcome of poor emotion regulation and this can be evidenced, at least in part, by the existing research on the underlying motivations for the offending (e.g., Hensley, Tallichet, & Dutkiewicz, 2011). When a person encounters a perceived conflict, we argue that animal abuse is a behavioural manifestation of two types of emotion regulation, specifically *under*-regulation and *mis*-regulation. And in response to these regulatory processes, maladaptive coping strategies are employed to counteract the cognitive dissonance. But before we embark on the conceptualisation of animal abuse within an emotion regulation framework, we must operationalise what we mean by *animal abuse.*

Definitional Issues: Animal Cruelty versus Animal Abuse

We use the terms *animal abuse* and *animal cruelty* inter-changeably throughout the human-animal relations literature (Gullone, 2012; Tiplady, 2013). However, there are apparent differences between *cruelty* and *abuse* which need to be distinguished. For instance, *cruelty* denotes a specific motivation, such as enjoyment or sadism, but not all acts of animal abuse are motivated in such a way (Rowan, 1999). Whereas, *abuse* can be viewed as a broader term that encompasses cruelty, as well as all other types of motivation. Thus, for the sake of clarity, the term *animal abuse* will be used throughout this thesis to capture the broader range of motivations and types of harm.

There are current debates and discussions on what the components of an animal abuse definition should entail. For example, attitudes towards, and acceptance of animal abuse vary significantly depending on factors such as, the species of the animal, the severity of the abuse, the type of abuse (i.e., psychological versus physical, passive versus active) and the frequency of abuse (i.e., one-off versus repeat). Thus, the definition of animal abuse has evolved over time in an attempt to account for these various issues, as well as the differences

found when considering particular cultural and societal norms (Akhtar, 2012). For the sake of simplicity, we refer to *animal abuse* as "all socially unacceptable behaviour that intentionally causes unnecessary pain, suffering or distress and/or death to an animal" (Ascione, 1993, pp. 83).

<div align="center">**Animal Abuse: Setting the Context**</div>

Child Perpetrated Abuse

To date, the literature has mostly focused on the link between animal abuse and human-directed aggression (e.g., Hensley et al., 2009; Kellert & Felthous, 1985; Merez-Perez, Heide, & Silverman, 2001). There is a myriad of empirical studies that have focused predominantly on the predictive strength of animal abuse perpetrated during childhood on interpersonal violence during adulthood. This has been examined in a series of retrospective studies. For instance, research utilising offender samples has found significantly higher levels of reported childhood animal abuse in aggressive or violent criminals (e.g., murder, sexual violence), when compared to non-aggressive offenders (e.g., theft, fraud; Kellert & Felthous, 1985; Merez-Perez, Heide, & Silverman, 2001). Hensley et al. (2009) acknowledged that repeated acts of childhood animal abuse were predictive of later recurrent acts of aggression towards humans. Moreover, methods of animal abuse utilised in childhood are often reflected in adult expressions of aggression towards humans (Henderson, Hensley, & Tallichet, 2011; Hensley & Tallichet, 2009; Wright & Hensley, 2003). For example, case studies of serial murderers examined within this study described sadistic behaviours, such as the mutilation and dissection of small animals during childhood. In the majority of the cases examined, this was later followed by mutilation and dissection of human bodies. This link becomes most apparent in the Diagnostic and Statistical Manual 5 (DSM-5) criteria for conduct disorder. According to the DSM-5, conduct disorder is a "repetitive and persistent pattern of behaviour in which the basic rights of others or major age-appropriate societal norms or rules are

violated" (American Psychological Association, 2013). In order to be diagnosed, a child will have to demonstrate at least three of the associated symptoms over the past year, which are encompassed in the following categories: aggression to people and animals, destruction of property, deceitfulness of theft, and serious violation of rules. Continuation of this disorder into adulthood has been found to be indicative of antisocial personality disorder (Loeber, Farrington, & Petechuk, 2002; Simonoff et al., 2004), which is characterised by irresponsible, exploitative behaviour, recklessness, impulsivity and deceitfulness (Livesley, 2007).

Within the childhood animal abuse literature, a number of factors have also been identified which help to explain the development of this behaviour in adults. For example, the younger the perpetrator during their first experience of animal abuse, the more likely they are to continue this behaviour into adulthood (Tallichet & Hensley, 2005). Moreover, children who are exposed to animal abuse and/or domestic violence in their home, are also more likely to start abusing animals themselves (Currie, 2006; DeViney, Dickert, & Lockwood, 1983; Thompson & Gullone, 2006). In one such study, Flynn (1999) reported that adult perpetrators of animal abuse were more likely to report being exposed to harsh/punitive parenting styles during their childhood/adolescent years than non-animal abusers.

Recently, Hensley and colleagues (2017) examined the social and emotional context of childhood animal abuse in order to explain this developmental pathway to adult interpersonal violence. They looked at whether, for example, feeling upset for the harm participants' caused animals during childhood could explain whether they become violent during adulthood. Their data could not speak directly to this relationship, but this study is one of the first to directly consider the role of emotion as a facilitator for violence escalation.

Adult Perpetrated Abuse

There is an emerging literature examining the link between adult-perpetrated animal abuse and human-directed aggression specifically within the context of domestic violence

(Ascione, 2005). For example, perpetrators of domestic violence may threaten or abuse animals to gain coercive control over their partner (Adams, 1994; Abrahams, 2007). A recent study examined 291 victims of domestic violence and found that 11.7% of the abusers threatened to abuse the family pet, and 26% acted on the threats of abuse (Hartmen et al, 2015). These figures are relatively low in comparison to previous studies which have found threat rates to range between 12 – 21%, and actual acts of animal abuse to range from 46 – 57% in cases of domestic violence (Ascione et al., 2007; Carisle-Frank et al., 2004; Faver & Strand, 2003; Volant et al., 2008). Moreover, domestic abusers who have also engaged in animal abuse exhibit higher rates of sexual violence, marital rape, emotional violence and stalking behaviours (Simmons & Lehmann, 2007). In some instances, victims of domestic violence can also be made to engage in animal abuse. For example, research has shown that victimised partners may be coerced into performing sexually abusive acts with an animal (Walker, 1979), or they may take out their anger on their pets (Walker, 1984), or in some extreme cases, they will kill their own pet to prevent it from coming to further harm at the hands of their abusive partner.

There are very few studies that have examined animal abuse in other specific contexts explicitly and/or without context. In a study of 153 convicted animal abusers, and an equivalent number of matched controls, Arluke and colleagues (1999) found that animal abusers were more likely to have previous criminal records, specifically for violent offences, than non-animal abusers. With a similar design, Febres and colleagues (2014) found that animal abuse was related to perpetration of severe psychological aggression, as well as physical aggression. Following studies have shown a link between direct interpersonal aggression (as opposed to displaced aggression) and direct animal abuse (whereby the animal is the perceived provocateur; Alleyne, Tilston, Parfitt, & Butcher, 2015), suggesting a possibility of shared characteristics between both forms of aggression (Parfitt & Alleyne,

2016). Walters (2013) compared reports of prior animal abuse in violent and non-violent prisoners and patients and found that animal abuse was predictive of antisocial behaviour broadly, not violence specifically. That is, animal abuse is just as much of an indicator of nonviolent antisocial behaviour as it is for violent antisocial behaviour.

Aside from the animal abuse and antisocial behaviour link, research has also found animal abusers to be more likely to hold pro-animal abuse attitudes, have lower levels of human-directed empathy (Erlanger & Tsytsarev, 2012), self-report higher levels of criminal attitudes (specifically in relation to power orientation; Schwartz et al., 2012), and higher levels of the Dark Triad traits (i.e., psychopathy, narcissism and Machiavellianism; Kavanagh et al., 2013).

Empathy deficits have also been highlighted as a key factor contributing to the development of animal abuse behaviour (Jolliffe & Farrington, 2004). Empathy is defined as "the reactions of one individual to the observed experiences of another" (Davis, 1983, p. 113). Thus, it is made up of a cognitive element (i.e., the ability to engage in perspective-taking) and an emotional element (i.e., the ability to share the feelings of others and react appropriately; Davis, 1980). In light of this, empathy is a key mechanism within the development of good decision making and positive social interactions. Therefore, deficits in empathy have been linked to an increased risk of violence to animals and humans alike (Stanger, Kavussanu, & Ring, 2012). For example, those who are less concerned by animal abuse also express lower levels of empathy towards other people (Ascione, 1997; Henry, 2006). Individuals who are more likely to engage in animal abuse are also more likely to score low on empathetic concern (i.e., the ability to experience other-oriented emotions; Parfitt & Alleyne, 2016).

Taken together, these findings highlight the negative implications of animal abuse, both psychologically and behaviourally. It is apparent from the literature that animal abusers

are a deviant and problematic offending group, therefore the motivations, characteristics and cognitions need further investigation to assist in the development of effective interventions. Whilst there is an accumulating body of research identifying the underlying characteristics and motivations of adult animal abusers, less research is focused on the offence process, or even the regulatory processes which may inhibit or facilitate animal abuse. However, it is important to first understand the motivations for animal abuse in order to extrapolate any further processes facilitating this behaviour (Hensley & Tallichet, 2005).

Motivations for Animal Abuse

One of the areas that has received the most attention in the literature has been the underlying motivations for the perpetration of animal abuse. From qualitative interviews with offenders who reported committing acts of animal abuse, Kellert and Felthous (1985) developed a classification scheme consisting of nine motivations for committing animal abuse. Based on these statements, they found that animal abusers' motivations were as follows: (1) to control (e.g., striking a dog to stop it from barking); (2) retaliation (e.g., kicking a dog because it urinated on the carpet); (3) prejudice against a specific species/breed (e.g., the belief that cats are not worthy of moral consideration); (4) expression of aggression through an animal (e.g., running illegal animal fights); (5) enhancement of one's own aggression (e.g., owning 'fighting' dog breeds to impress others); (6) shocking people for amusement (e.g., social media fads such as swallowing a live goldfish); (7) retaliating against another person/revenge (e.g., harming a disliked persons' pet); (8) displacement of aggression from a person to an animal (e.g., lashing out at a pet due to frustration provoked by your boss at work); and finally, (9) sadism (tendency to derive pleasure from inflicting suffering, injury or death on an animal). Kellert and Felthous (1985) however, did not distinguish the age of animal abuse perpetration so although they were interviewed as adults, some could have been reporting on incidents which occurred during childhood.

More recently, Arluke (2002) conducted interviews with 25 college students, asking about their involvement in and motivation for animal abuse perpetration. The majority of participants reported committing these acts because they were risky, with the main motivation being the thrill of 'getting away with it'. Later on, Hensley and Tallichet (2005) conducted a similar study on 112 inmates. When asked to indicate motivations for animal abuse, 48% reported committing the acts out of anger, 33% reported that they were motivated by fun, 22% reported that they were motivated by a prejudice or because they wanted to control the animal, 14% reported that they were motivated by revenge or sexual gratification, and the remainder were too unclear to categorise effectively. Once again, the authors did not distinguish the age of animal abuse perpetration, so their data cannot speak to any explicit developmental processes. Following this, Hensley, Tallichet and Dutkiewicz (2011) conducted a study to examine the potential impact demographic and situational factors may have had on the motivations for animal abuse identified in the previous study. They found that acts committed out of anger were less likely to be covered up or cause upset to the perpetrator. However, these acts were more likely to re-occur. Acts committed to shock others were more likely to be carried out alone and in urban areas, and sexually driven acts were more likely to be covered up and re-occur.

More recent attempts have been made to understand the underlying motivations for incidents of animal abuse. Levitt, Hoffer and Loper (2016) examined criminal histories of 150 animal abusers and found 21% of incidents resulted from animals' misbehaviour, 7% resulted from retaliation against the animal, 8% resulted from retaliation against another person, and 13% resulted from a domestic dispute. Similarly, Newberry (2017) examined the associations between motivations for animal abuse, methods and impulsivity in a sample of undergraduate students. Out of the 130 participants who took part in the study, 55% reported

engaging in at least one act of animal abuse. The most commonly reported motivations were prejudice, amusement, control, and retaliation.

To our knowledge, there is only one social psychological model of animal abuse (Agnew, 1998). There are two parts to this model. The first describes the individual-level factors which increase the likelihood of an individual engaging in animal abuse. These include: (1) being unaware of the consequences of their behaviour on the animals; (2) not thinking that their behaviour is wrong; and (3) believing that they benefit from the behaviour. The second part of the model describes a further set of factors which have both direct and indirect effects on animal abuse. These include: (1) individual traits (e.g., empathy), (2) socialisation (e.g., taught beliefs, behavioural reinforcement/punishment), (3) strain or stress level (e.g., strain/stress provoked by the animal), (4) level of social control (e.g., attachment to the animal, commitment to school/family), and (5) nature of animal (e.g., animals similarity to us). Focusing specifically on the individual traits described by the model, Agnew highlights impulsivity, sensation-seeking, irritability and low self-control as major influencers for animal abuse. He suggests that such traits largely originate from socialisation, specifically poor socialisation as a child. But what this model does not explicitly account for is the role of emotions (and the regulation of these emotions) in the facilitation of this offending behaviour. For example, socialisation experiences that are dysfunctional and/or abusive could, arguably, breed resentment and other types of negative emotions. How that child copes with those emotions, in addition to the normalisation of animal abuse behaviour, could be what explains whether the child (or in future, the adult) goes on to engage in animal abuse. Whilst this model does well to set out the social and developmental factors related to animal abuse; it certainly leaves room for developing our understanding of the process variables that facilitate this type of behaviour.

Taking into account this research, a number of common themes emerge that we can build on to explain why adults harm animals. Specifically, much of the research has found that people may engage in animal abuse out of anger or in pursuit of excitement/fun (Agnew, 1998; Hensley & Tallichet, 2005; Kellert & Felthous, 1985). Both scenarios are indicative of poor emotion regulation, whereby the resulting behaviour appears to be the outcome of impulsiveness (i.e., "rapid, spontaneous, unplanned, and maladaptive" behaviour; Enticott, Ogloff, & Bradshaw, 2006; Newberry, 2017) or effortful control (Eisenberg, Smith, & Spinrad, 2011). For example, in some instances, it appears individuals engage in animal abuse because of a perceived threat (either from the animal itself or another individual) and have difficulty in regulating their emotions resulting in an aggressive outburst towards the animal. On the other hand, some individuals are able to plan their opportunity to engage in animal abuse (perhaps motivated by their desire to have fun) demonstrating a higher level of emotion regulation. These contrasting examples have been supported by existing studies. Ramirez and Andreu (2006) found a link between impulsivity and aggressive behaviour, including animal abuse. Similarly, Newberry (2017) looked explicitly at the different facets of impulsivity and found various associations between this construct and motivations and methods of animal abuse. In contrast, Parfitt and Alleyne (2017) found a link between animal abuse proclivity and effective anger regulation. These relationships present a conundrum because there is evidently a relationship between an individual's ability to regulate (whether effectively or ineffectively) their emotions and animal abuse behaviour, but there is yet to be a conceptual framework to explain why and how this occurs.

Emotion Regulation and Animal Abuse Perpetration

To date, there is a developing body of literature which has linked difficulties with emotion regulation with a variety of maladaptive behaviours, including but not limited to, substance misuse (Bonn-Miller, Vujanovic, & Zvolensky, 2008; Kun & Demetrovics, 2010),

self-harm (Buckholdt, Parra, & Jobe-Shields, 2009; Gratz & Tull, 2010), elevated aggression (Roberton, Daffern & Bucks, 2014), aggressive behaviour (Gratz et al., 2009; Tager et al., 2010), sexual deviance (Tull, Weiss, Adams, & Gratz, 2012), and disordered eating behaviours (Selby, Ward, & Joiner, 2010). So far, the role of regulatory processes has not been examined in relation to the perpetration of animal abuse, which is surprising given that animal abuse (perpetrated by children and adults) has been linked to a variety of deviant behaviours, suggesting possible shared characteristics with other types of offending groups (Ascione, 2005). Deficits in empathy are also evidenced in the animal abuse literature, which is broadly the understanding of emotions experienced by others (Gupta, 2008; Dadds et al., 2006; Merez-Perez & Heide, 2004; Ramirez & Andreu, 2009). Thus, it can be argued, theoretically, that difficulties in emotion regulation comprise a significant explanatory factor in the perpetration of animal abuse.

Anger rumination which is the tendency to brood about negative experiences and feelings (Nolen-Hoeksema, 1991) has also been overlooked in the existing animal abuse literature. Anger rumination is often examined in the context of various aggressive behaviours. Collins and Bell (1997) found that rumination predicts aggressive responses to perceived insults. Bushman, Bonacci, Pedersen, Vasquez, and Miller (2005) reported that rumination about an experimental provocation increased the likelihood of participants exhibiting displaced aggression. Therefore, it is possible that anger rumination, as an additional method of maladaptive emotion regulation, could facilitate animal abuse through the use of displaced aggression.

As mentioned previously, only one psychological theory of animal abuse has been proposed in the existing literature. Agnew's (1998) social-psychological theory draws on existing criminological theories including social learning theory, strain theory and control theory to help explain why individuals engage in animal abuse. Due to the evidenced overlap

between animal abuse and other types of antisocial behaviour (specifically interpersonal), other theoretical approaches from the criminological literatures may also lend support towards explaining animal abuse with consideration of the experiences of emotions, the processing of self and others' emotions, and the regulation of emotions. For example, *rational choice theory* (Becker, 1968) suggests that perpetrators willingly choose whether to commit an offence or not based on a rational consideration of the costs and benefits of the intended behaviour. Based on this theory, an individual would engage in animal abuse on the basis that it will be rewarding, profitable, or satisfy a need more effectively than a noncriminal behaviour could. However, this is based on the assumption that those who engage in antisocial behaviour are no different to those who do not (Kubrin et al., 2009). Specifically, individual differences in personalities which may cause particular behaviours, such as animal abuse, are not fully considered. The different emotion regulation strategies which may take effect in a given situation which determine whether or not someone engages in animal abuse are overlooked in this approach.

Another well-cited theory, *social learning theory*, argues that individuals' behaviours are determined by what they learn from their environments (Bandura, 1977). For example, some learn by observing prototypical models of behaviour, or they learn by observing the punishment and reinforcement of certain behaviour, but simply put, we learn the beliefs, attitudes, and behaviours we are most exposed to (Agnew, 1998). A substantial body of evidence also links poor child-rearing environments with abusive behaviour towards animals as an adolescent/adult (Becker at al., 2004; Felthous, 1980; Hensley & Tallichet, 2005). According to Wright and Hensley (2003), individuals engage in animal abuse because they are frustrated, so to release this frustration they redirect their aggression towards an animal who is considered weaker and less likely to retaliate. Children raised in hostile home environments may also be more likely to model their care-givers abusive behaviour, and

through the process of modeling and reinforcement, they learn to become abusive towards humans and animals alike (Hensley et al., 2012). Overall, social learning theory does better accounting for the development of childhood acts of animal abuse as opposed to adult acts. Additionally, it struggles to fully explain opportunistic offending which has not previously been observed. However, the presence of frustration as a predictive factor for animal abuse is supportive of existing evidence linking ineffective anger regulation with an increased likelihood of animal abuse (Parfitt & Alleyne, 2017). Whilst social learning theory can tell us that ineffective emotion regulation develops through social interactions as a childhood, little is known about the role of emotion regulation as an adult in influencing antisocial behaviours, such as animal abuse.

Strain theory has previously been applied to the perpetration of animal abuse (Agnew, 1998). Based on this theory, animals can be direct provocateurs or indirect provocateurs of abuse. For example, an animal may interfere with the perpetrators ability to achieve a desired goal or it may engage in unwanted behaviours. Consequently, the perpetrator will justify the abuse as being deserved or necessary. Alternatively, some individuals may engage in animal abuse for revenge purposes or personal gain. For example, they would abuse an animal as an outlet for the aggression they have built up due to stress or strain. In this instance, there may be an inability to process the negative emotions efficiently or effectively, highlighting the importance of considering emotional processing in the perpetration of animal abuse. Whilst strain theory explores how emotions may facilitate or inhibit antisocial behaviour such as animal abuse, the exact role of emotional processing needs further clarification (Dippong & Fitch, 2017).

The violence graduation hypothesis is another proposed theoretical underpinning of animal abuse. Despite receiving limited empirical support, this hypothesis suggests that children who engage in animal abuse will later graduate to more serious offending towards

humans as an adult (Arluke, Luke, & Ascione, 1999; Wright & Hensley, 2003). Whilst some studies have found support for this developmental trajectory via retrospective self-reports (Felthous, 1980; Kellert & Felthous, 1985; Wright & Hensley, 2003), others have found little to no supporting evidence (Beirne, 2004; Green 2002; Walters, 2013) and argue that there are methodological limitations within these studies (Thompson & Gullone, 2003).

The deviance generalisation hypothesis is a competing theory, which proposes that animal abuse is just one form of many forms of antisocial behaviour that can precede or follow any other type of offending (Arluke et al., 1999). In other words, those who engage in animal abuse are likely to commit other types of offending. Engaging in childhood animal abuse allows the individual to learn and practice cruelty and violence, causing them to become desensitised to violence, which enables them to commit later acts of violence towards humans. There is greater support for this hypothesis, however, it has also been criticised for its inability to explain why some children who abuse animals do not go on to commit further acts of violence, and why some serial murderers have no history of animal abuse (Walters, 2013; Wright & Hensley, 2003).

The deviance generalisation hypothesis developed from a much larger criminological theory, namely self-control theory (Gottfredson & Hirschi, 1990). This theory encompasses a broader range of developmental, social and behavioural factors and posits that antisocial behaviour is the result of low self-control. There are five important factors which determine criminality: (1) an impulsive personality, (2) a lack of self-control, (3) depleting social bonds, (4) an opportunity to engage in antisocial behaviour, and (5) deviant behaviour (Siegel & McCormick, 2006). An individual's level of self-control is determined throughout early childhood and remains stable throughout life. Therefore, child-rearing and school experience are key factors in developing self-control. If parents and teachers monitor children's behaviour, recognise deviant behaviour and address it accordingly, appropriate levels of self-

control will develop. However, if this is not achieved, individuals will develop poor self-control and struggle to resist the short-term gains that antisocial behaviour might otherwise provide (Gottfredson & Hirschi, 1990). According to the authors, such individuals are self-centred, have a low threshold for frustration, take risks, become aggressive quickly, lack empathy and lack diligence. Based on this, one can see how a provocation from an animal may result in an aggressive outburst towards the animal. However, self-control theory does not fully address the exact process of self-, or emotion-regulation, in the causation or prevention of an aggressive behavioural outcome, such as animal abuse.

Similarly, the frustration-aggression hypothesis (Dollard et al., 1939) suggests that aggressive behaviour is the direct result of frustration, which is defined as any event or stimulus that prevents an individual attaining some goal and its accompanying reinforcing quality. Whilst frustration is essential for aggression, there are contextual factors which can inhibit an aggressive response (Dollard et al., 1939), such as the risk of punishment. When aggressive responding is suppressed, the individual may be unable to achieve the desired goal using non-aggressive strategies. As a result of this, the non-aggressive response becomes dominated by an aggressive response. For example, when applied to animal abuse it is clear to see how frustration caused by an animal may lead to an aggressive outcome towards that animal. Whilst this hypothesis does well to explain reactive aggression, it does not fully capture other types of abuse towards animals, such as sadistic abuse or abuse towards animals who are not directly responsible for the frustration.

Whilst the theories reviewed so far do lend support in explaining animal abuse behaviour, they are single factor theories. As a result of this they are generally limited in scope. The next theory to be reviewed is a multi-factor theory which could be better at capturing the complexities of animal abuse motivations and facilitators.

The General Aggression Model (GAM; Anderson & Bushman, 2002) has been used to explain how situational, individual and biological factors interact to produce various cognitive, emotional, physiological and behavioural outcomes. Given that animal abuse is an aggressive behavioural outcome, and the GAM's focus is understanding aggression, its framework may be utilised for better understanding the process behind animal abuse. The GAM consists of three core structures: inputs, routes and outcomes (see Figure 1). The inputs are the key causal factors of aggression, and can be situational (e.g., provocation, such as an insult), or individual (e.g., personality and attitudes). The interaction of the inputs then primes the three main routes to aggression; namely cognitive (e.g., aggression related schema/scripts), affective (e.g., mood/emotion and motor responses) and physiological (e.g., increased heartrate or blood pressure). These three routes are interconnected and can therefore guide or influence one another with ease, which has an immediate effect on the person's appraisal of the situation. Immediate appraisal is an automatic response, i.e., occurring outside of the person's conscious awareness. Depending on the situation, immediate appraisal will result in an automatic trait, or situational inference. For example, someone with aggressive thoughts will be more likely to perceive an accidental event (e.g., being bumped into by someone in a busy bar) as purposeful and will respond accordingly. However, someone with less-aggressive thoughts will be more likely to perceive an accidental event as a direct consequence of the situation (e.g., the bar is crowded). The elected response is determined by the person's personality and current state of mind. Reappraisal occurs if the person has the required resources (e.g., time and cognitive capacity) and if the immediate appraisal outcome was not satisfactory. This method is more effortful and conscious than appraisal as the person must seek an alternative view of the situation, which may include what caused the event, important memories, and important features of the

current situation which may influence the outcome. At the end of this framework is the

behavioural outcome, whereby the response is either aggressive or non-aggressive.
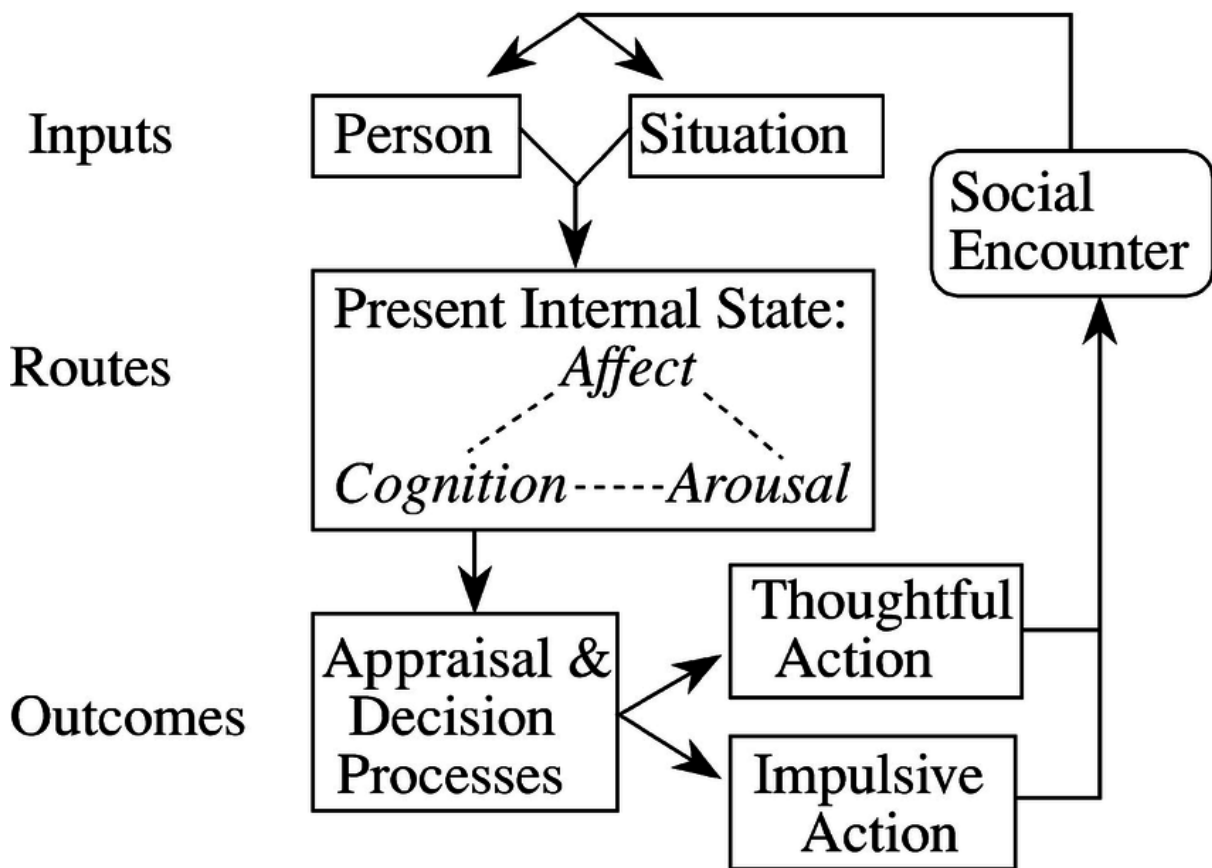
Figure 1: General Aggression Model (Anderson & Bushman, 2002)

Based on the GAM, it can be argued, for example, how a provocation from an animal

may result in an aggressive outburst towards the animal. However, taken together with the

research findings on emotion regulation and its associations with animal abuse, it would seem

that the GAM does not fully explain its role in this relationship. Whilst the GAM does

consider aggression inhibition in the form of self-regulation based on moral standards, it does

not consider the role of the individual emotion regulation styles identified in the current

emotion regulation literature. Similarly to the previous psychological and criminological

theories, the precise role of emotion regulation is generally overlooked and requires further

exploration and consideration given the accumulating evidence of its potential importance.

Given this argument for a conceptual framework that integrates multiple factors with emotion regulation as a central process, we would argue that a process model of emotion takes these into account. A process model of emotion proposed by Gross (1998) suggests that emotion begins with an evaluation of external and internal emotion cues, which leads to a corresponding set of behavioural, experiential, and physiological emotional response tendencies; see Figure 2. Within this model, there are two ways in which emotion is regulated: antecedent-focused emotion regulation (AFER) and response-focused emotion regulation (RFER). According to Gross, that AFER pathway occurs early and interferes before emotion response tendencies have been fully stimulated. For instance, individuals will choose whether to avoid or approach a particular person or situation based on the potential emotional impact. They will reassess the situation, or their ability to manage the situation, so as to alter their emotions. Furthermore, they may also direct their attention towards or away from the events to regulate their emotion. In comparison, RFER occurs after an emotion is experienced. In this instance, individuals will suppress, increase, diminish, extend, or limit ongoing emotional experience, expression or physiological/behavioural responding.
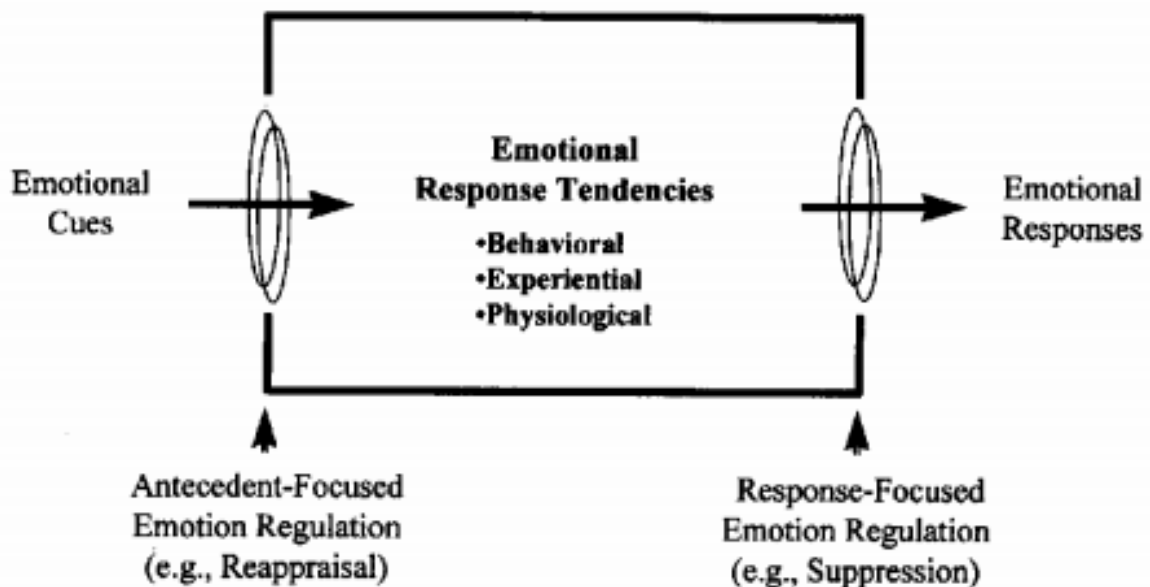
Figure 2: A process model of emotion that highlights two major classes of emotion regulation as proposed by Gross (1998).

There is research to support this distinction between emotion regulation pathways AFER and RFER (Gross, 1998; Gross & John, 2003). In doing so, research has focused on two specific types of emotion regulation, cognitive reappraisal and expressive suppression. Cognitive reappraisal is a method of RFER and involves the construction of a possibly emotion-eliciting situation to change its emotional impact (Lazarus & Alfert, 1964). In contrast, expressive suppression is an AFER pathway, which inhibits ongoing emotion-expressive behaviour (Gross, 1998). Findings suggest that reappraisers experience and express more positive emotions than suppressors, by taking an optimistic approach, reinterpreting, and making efforts to deal with emotional distress. Reappraisers also have more adaptive consequences than suppressors, in the form of close relationships, self-esteem, emotion regulation and general life satisfaction (Gross & John, 2003).

When employed appropriately, emotion regulation allows individuals to handle situations effectively, and often in a prosocial way. However, maladaptive emotion regulation can result in difficulties in functioning within an environment (Bridges, Benham, & Ganiban, 2004). Thus, determining whether a response is appropriate is dependent on the unique situational context combined with the personal goals of the individual involved. For instance, when considering aggression, suppressing its expression would be considered adaptive in a stressful work environment. In contrast, suppressing the expression of anger during an interpersonal conflict, such as self-defence or in a military environment, would be considered maladaptive. Based on this, the importance of considering a person's typical emotion regulation style is highlighted, whether that be characteristically adaptive or maladaptive. Therefore, emotion regulation is going to be broken down into under- and mis- regulation, as they are the two most prominent features of maladaptive emotion regulation within the current literature. In doing so, the opposing emotion regulation styles can be matched with unique outcome behaviours identified in the literature explored so far.

Before examining these unique regulation strategies, we must first consider the developmental aspect of emotion regulation. These are developmental factors which have been identified in animal abusers and play a role in the development of maladaptive emotion regulation strategies. Taken from the literature, it is proposed that childhood animal abuse, witnessing animal abuse, exposure to domestic violence, harsh/punitive parenting, and a poor home environment (Boat et al., 2011; Currie, 2006; DeGue & DiLillo, 2009; DeViney et al., 1983; Flynn, 1999; McPhedran, 2009; Tallichet & Hensley, 2005; Thompson & Gullone, 2006) are all developmental factors which feed into maladaptive emotion regulation strategies. Thus, it is our understanding that such factors predispose or at least play a role in these maladaptive processes.

Under-Regulation of Emotional Responses

In the case of under-regulation, individuals are unable to avoid or suppress their emotion responses and thus fail to inhibit impulsive reactions and maintain goal-directed behaviour. This is important as research has found that an inability to suppress emotion responses can impact an individual's ability to achieve their desired goals (Greenberg, Elliott, & Pos, 2007). This is mainly due to the resulting inability to regulate emotions effectively enough to control their own behaviour. For example, individuals who under-regulate emotions, such as anger, are more likely to engage in aggressive behaviour (Roberton, Daffern, & Bucks, 2012). In order to address the uncomfortable over-emotional state, individuals will behave aggressively to either (1) repair, (2) terminate, or (3) avoid their internal distresses (Gardner & Moore, 2008).

Mis-Regulation of Emotional Responses

In contrast, mis-regulators inhibit the development of emotional experiences altogether. This can also have negative implications as emotional responses are required for the accompanying physiological and psychological processes to operate effectively and as

normal (Whelton, 2004). By suppressing emotional responses, individuals make themselves susceptible to a range of physical, psychological and social costs. For example, suppressing emotional responses does not reduce the experience of negative emotion, in some cases, it can have the opposite effect (Gross & John, 2003; John & Gross, 2004). Emotion suppression has also been associated with increased levels of anxiety (Hofmann, Heering, Sawyer, & Asnaani, 2009), lower levels of self-esteem (Gross & John, 2003), and increased levels of stress (Moore, Zoellner, & Mollenholt, 2008). In a review, Roberton et al. (2012, pp. 78) concluded that mis-regulation of uncomfortable emotions through suppression can lead to "increased negative affect, reduced inhibitions towards aggression, compromised decision-making processes, impoverished social networks and increased physical arousal".

Taken together, these findings suggest that both styles of emotion regulation are maladaptive and dramatically hinder adaptive emotion regulation. This in turn, prevents individuals from inhibiting impulsive behaviour and pursuing goal-directed behaviours, whilst focusing their attention on the emotion experience and allowing it to fully develop (Gratz & Tull, 2010; Whelton, 2004). However, there are appropriate strategies for emotion regulation (that can be taught) that work as protective factors. Three unique skills are alleged to be linked with adaptive emotion regulation, these include: emotional awareness, emotional acceptance, and access to emotion regulation strategies.

Emotion Regulation as Protective Factors: Adaptive Coping Strategies

In addition to identifying the factors which motivate animal abuse and the underlying processes, it is important to also consider what ultimately prevents these factors and processes from developing into the undesired behaviour that is animal abuse. The existing criminological theories predominantly focused on identifying risk factors associated with aggression, meaning there is little emphasis on the protective factors with inhibit the development of aggression. By identifying adaptive coping strategies, it is possible to negate

the maladaptive regulation strategies that accommodate animal abusive behaviour. *Emotional awareness* can be defined as an individual's ability to recognise and acknowledge their own internal emotional states. This permits an individual to be aware of the values, goals and needs contained within the emotion experience (Barrett et al., 2007). Without efficient emotional awareness, individuals struggle to respond appropriately to an emotion experience. *Emotional acceptance* involves the active process of responding to emotions open-mindedly. By doing so, the physiological and psychological processes which accompany these emotions are able to progress naturally (Whelton, 2004). Without efficient emotional acceptance, individuals are likely to avoid or suppress the emotion/ emotion experience (Chambers, Gullone, & Allen, 2009). Finally, *access to strategies* is vital for regulating emotions in accordance with environmental demands and for maintaining the personal goals of the individual (Gross, 2002). With limited access to regulation strategies, an individual becomes unable to suppress particular emotion experience, or have limited flexibility when employing a particular strategy on a particular emotion.

Adaptive coping strategies such as these have been adapted into intervention programs in an attempt to improve emotion regulation directly, or as a means of providing emotional stability before carrying out more intensive cognitive and behavioural interventions (Farrell & Shaw, 1994). One such program is Emotional Intelligence Training (EIT), which taps into the three facets of adaptive coping, by teaching emotional awareness and emotion regulation strategies, including a module on acceptance. So far, the effectiveness of this method has been tested in the fields of organisational and clinical psychology, providing promising results. For example, in a clinical sample of borderline personality disorder patients, those provided with EIT saw significant improvements in emotional intelligence (which includes emotion regulation), as well as a decrease in depressive symptoms, in comparison to the control group (Jahangard et al., 2012). In another study,

company managers were provided with EIT, which resulted in increased emotional intelligence and improved health and well-being, in comparison to a control group (Slaski & Cartwright, 2003). Findings such as these highlight the potential for these three adaptive coping strategies to be manipulated into interventions focused on improving emotion-regulation.

The Role of Emotion Regulation in Animal Abuse Perpetration

Whilst there is a fairly established body of research proposing that maladaptive emotion regulation is associated with problematic behaviours (Aldao et al., 2010; Gratz & Hull, 2010; Tull et al, 2012), such as aggression (Cohn, Jakupcak, Seibert, Hildebrandt, & Zeichner, 2010), there is no known research examining the relationship between adult animal abuse and maladaptive emotion regulation; which is surprising considering the well-evidenced links between animal abuse and aggressive behaviour (Baxendale, Lester, Johnston, & Cross, 2015; Coston & Protz, 1998; Flynn, 2011; Hensley, Tallichet, & Dutkiewicz, 2012; Vaughn et al., 2009; Walters, 2014). For instance, Cohn et al. (2010) conducted a study using male university students and found that maladaptive emotion regulation mediated the relationship between the tendency to restrict emotions and the use of physical aggression. Similarly, Tull and Roemer (2007) conducted a study on university students and staff, and found that avoidance of emotion experience and emotional inexpression were predictive of aggressive behaviour. Taken together, these findings support the relationship between emotion regulation style and aggressive behaviour. However, the way in which emotion regulation manifests amongst animal abusers, who are markedly more aggressive than the general population, is currently unknown (Arluke, Levin, Luke, & Ascione, 1999).

So far, one such study has looked directly at the link between anger regulation and animal abuse propensity. Parfitt and Alleyne (2017) conducted a study on undergraduate

students and found *better* anger regulation to be predictive of animal abuse propensity (i.e.,

likelihood to engage in the abuse). When they examined animal abuse propensity by level of

severity (i.e., neglect versus physical abuse), they found that low levels of neuroticism were

uniquely predictive of scenarios depicting low severity animal abuse (e.g., neglect). That is,

individuals who are likely to engage in less severe forms of animal abuse (or arguably, more

passive forms) are also more emotionally stable and aware (Costa & McCrae, 1992). The

authors suggest that this is indicative of a particular type of animal abuser, one that is well-

organised, more controlled, and emotionally stable. There was also an interesting, however

contradictory, finding in their study. People who scored high on impulsivity also scored high

on overall animal abuse propensity. That is, individuals who have difficulty regulating their

behaviour were more likely to engage in animal abuse. But the authors argue that this further

substantiates an issue with emotion regulation. That is, their findings are indicative of an

explosive type of abuser, one who is less able to regulate their emotions effectively, so

engage in animal abuse as an immediate outlet. These findings are further substantiated by

related research that has established a relationship between maladaptive emotion regulation

and problematic behaviours (Aldao et al., 2010; Gratz & Hull, 2010; Tull et al., 2012), in

particular, aggressive behaviour (Cohn, 2010). So, there is, at least, a theoretical link worth

exploring further because we know that animal abusers often present with aggressive traits

(Arluke et al., 1999), and have empathy deficits, in particular with emotional empathy (Parfitt

& Alleyne, 2016).

Further consideration is needed regarding the dual typology of emotion regulation

(i.e., under- versus mis-regulation) and how it relates to animal abuse (i.e., planned, well-

organised perpetrators versus impulsive, explosive perpetrators; Parfitt & Alleyne, 2017).

Taken with the existing literature on emotion regulation, there are a number of theoretical

links which can be made. According to Gross' (1998) emotion regulation process model, mis-

regulators who suppress their emotion reactions are characterised by reduced inhibitions towards violence and increased physical arousal (Roberton et al., 2012). Therefore, when individuals have insufficient mental resources to engage in reappraisal processing, they are more likely to engage in immediate appraisal and are less likely to control their aggressive impulses when provoked. Likewise, when individuals are used to practicing self-control (i.e., suppressing emotional reactions), they are immune from the negative effects of mental exhaustion and are more likely to engage in a less impulsive, and more strategic behavioural response. This reflects indirect animal abuse, where an individual uses an animal as an alternate outlet for aggression, despite being provoked by another person/situation (Alleyne et al., 2015). For example, an individual who is provoked by another person, or a particular situation, suppresses their emotions, as not to aggress towards that person. However, the utilisation of suppression only increases their likelihood to aggress impulsively, resulting in them directing their aggression towards an animal. An alternative narrative would also argue that an individual who is provoked by another person, or situation, would suppress their initial desire to retaliate, and methodically plan how they will use an animal to manipulate the perceived provocateur. In this instance, the individual reappraises the situation, and avoids any natural behavioural or subjective emotional reactions. Thus, it is proposed, in this context, that this indirect animal abuse (or in other words, displaced aggression) is reflective of mis-regulation; see Figure 3.

Perceived Provocation

Person   Animal

Social Encounter

Routes

Present Internal State:

Affect

Cognition   *Arousal*

Outcomes

Appraisal & Decision Processes

Under-regulation (*Impulsive Action*)

Mis-regulation (*Thoughtful Action*)
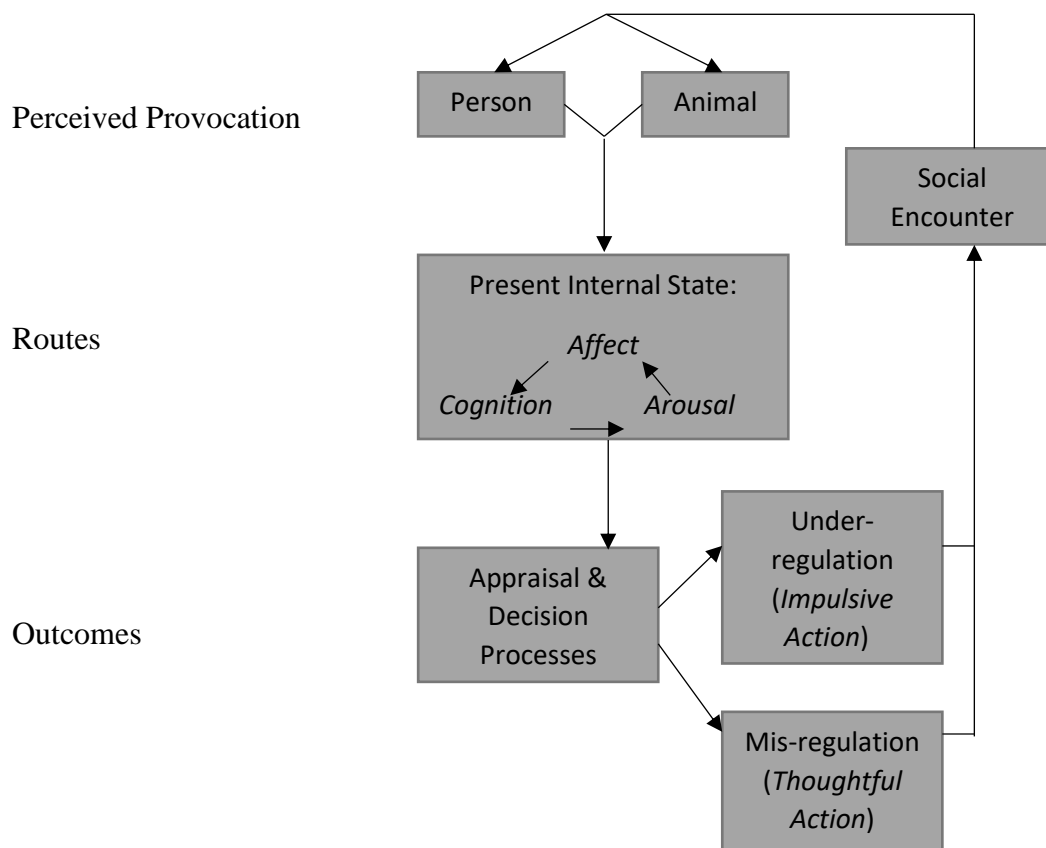
Figure 3: An adaptation of the General Aggression Model (Anderson & Bushman, 2002).

Based on the same principle, Gross' (1998) model suggests that under-regulators are unable to inhibit impulsive reactions, or control their behaviour, making them more likely to react impulsively and sometimes violently (Roberton, Daffern, & Bucks, 2012). In accordance with this, previous theories including the GAM (Anderson & Bushman, 2002) and strain-theory (Agnew, 1998) suggest that individuals who are mentally exhausted (i.e., unable to regulate their emotions) are less likely to control their aggressive impulses when provoked. This is indicative of direct animal abuse, whereby the perpetrator explicitly and directly aggresses towards the animal (Alleyne et al., 2015). For example, an individual who is provoked by an animal fails to regulate their emotions effectively, resulting in a direct and violent attack on the animal. Thus, it is proposed that under-regulators are more prone to

engage in direct animal abuse as they do not have the sufficient mental resources to engage in reappraisal processing.

Conclusion

This chapter has focused on research and theoretical approaches relating to the role of emotion regulation in animal abuse perpetration by adults. It is apparent from the existing literature that emotion regulation, despite being an important factor, has so far been overlooked in animal abuse research. As highlighted throughout this chapter, it is important that we understand why an individual commits animal abuse. Thus, further research is warranted in order to shed more light onto these underlying motivational processes. It is also important to understand how each unique style of emotion regulation (i.e., mis-regulation or under-regulation) contributes to the specific behavioural outcome. If this thesis can substantiate these links, there will be clear targets for more effective intervention/prevention strategies.

Throughout this chapter, we have argued that the process of emotion regulation has an important role to play in facilitating individuals' engagement in animal abuse. Constructs closely linked with emotion regulation, such as poor impulse control and lack of other-oriented appraisal of emotions, have previously been identified as important factors contributing to acts of antisocial behaviour, including animal abuse. By applying what we know about emotion regulation and aggression to the existing criminological theories, the process through which animal abuse occurs can be better understood. Specifically, the existing criminological theories (e.g., GAM, self-control, strain-theory) consider how the individual and situation interact to influence the likelihood of aggression in a given scenario. In the context of animal abuse, our adapted model would argue that the perceived provocateur would be either an individual or an animal. The third stage of the model focuses on appraisal and decision-making processes, and on aggression or non-aggressive outcomes.

In our adapted model, we apply elements of emotion regulation processes and propose that the appraisal and decision-making process leads to under-regulation (i.e., impulsive action), or mis-regulation (i.e., thoughtful action) of emotions. These outcomes mimic the two styles of animal abuse taken from the animal abuse literature; direct (i.e., the target of aggression is the perceived provocateur) and indirect (i.e., displaced aggression towards an animal).

The maladaptive emotion regulation techniques identified in this chapter correspond with existing emotion regulation models, such as that proposed by Gross (1998) and aggression models, such as that proposed by Anderson and Bushman (2002). When an individual adopts maladaptive coping strategies, they have difficulty inhibiting impulsive tendencies and maintaining goal-directed behaviour. Furthermore, maladaptive coping obstructs the physiological and psychological processes required to behave effectively and respond to situations 'normally'. More importantly, we argue that emotion regulation provides a stronger theoretical explanation of the self-regulatory process that underlies animal abuse perpetration. The two proposed pathways of emotion regulation could explain the various circumstances under which animal abuse is carried out.

As discussed in this chapter, there has been very little attempt to consider the role of emotion regulation in explaining animal abuse perpetration. However, by utilising the existing literature we present a preliminary conceptualisation of how the two maladaptive styles of emotion regulation may operate in the perpetration of animal abuse by adults. We hope that the proposed conceptualisation will serve as a useful framework for researchers in the animal abuse field specifically, and aggressive/offending behaviour more generally. But most importantly, this preliminary conceptualisation presents testable hypotheses that will lead to further developments in theory and practice.

The broad aim of this thesis is to explore the notion that emotion regulation facilitates adult perpetrated animal abuse. In order to investigate this general hypothesis, the thesis has

six main objectives. In utilising this framework, a series of six studies were conducted to examine how the two maladaptive styles of emotion regulation may operate in the perpetration of animal abuse by adults. These studies had the following aims:

1. To first identify the socio-demographic and psychological factors (i.e., self/emotion-regulation) that distinguish animal abusers.

2. To identify the socio-demographic and psychological factors (i.e., self/emotion-regulation) that distinguish animal abusers from other types of offenders.

3. To develop the first ever animal abuse offence chain that takes into consideration the thoughts, feelings, and management of those feelings/emotions at the various stages of perpetration.

4. To facilitate experimental exploration of the psychological mechanisms that facilitate animal abuse behaviour by designing and validating a behavioural proxy for animal abuse.

5. To examine how manipulating the two emotion regulation strategies impacts on animal abuse via the behavioural proxy.

6. To examine how manipulating the two emotion regulation strategies impacts on direct and indirect forms of animal abuse proclivity.

To address these aims, a multi-method approach was taken in this thesis. The studies that follow consist of correlational and experimental quantitative methods, as well as qualitative methods to capture unique perspectives.

CHAPTER TWO

The Self and Other Regulatory Processes that Distinguish Animal Abuse

Behaviour

Introduction

The concept of emotion regulation was introduced in Chapter 1 to explore the

different strategies that facilitate the perpetration of animal abuse. We posit that maladaptive

emotion regulation plays a fundamental role in our understanding of how and why this abuse

occurs. Specifically, under-regulation (i.e., impulsive action), or mis-regulation (i.e.,

thoughtful action) of emotions arguably mimics the two styles of animal abuse taken from the

animal abuse literature; direct (i.e., the target of aggression is the perceived provocateur) and

indirect (i.e., displaced aggression towards an animal; Alleyne et al., 2015). The link between

maladaptive emotion regulation and problematic behaviours, such as aggression, is well

documented in the literature. For example, deficient emotion regulation is characteristic of

individuals with extensive histories of aggressive behaviours (Roberton, Daffern, & Bucks,

2014), as well as the perpetration and repeated perpetration of sexual offending (Hanson &

Morton-Bourgon, 2005; Polaschek & Ward, 2002). However, there is no known research

explicitly examining the relationship between adult-perpetrated animal abuse and

maladaptive emotion regulation. Given the existing links between animal abuse and

interpersonal aggression, this is surprising and warrants further exploration.

Previous research has reported that a history of childhood abuse and neglect,

experiences of childhood animal abuse, and other emotion regulation related variables

increase the likelihood of engaging in adult-perpetrated animal abuse (see Chapter 1).

Furthermore, Chapter 1 has provided a detailed account of how the different types of emotion

regulation may facilitate the different types of adult-perpetrated animal abuse, namely,

cognitive reappraisal and expressive suppression. However, the true nature of this relationship is yet to be empirically tested. Furthermore, it is also unknown how individuals' own experiences of childhood abuse and abuse towards animals may interact with this association. In light of the current state of literature on adult-perpetrated animal abuse, it is apparent that further research is needed to identify the emotion regulation strategies and characteristics that distinguish animal abusers from non-animal abusers, and to examine how the relevant psychological factors taken from existing literatures map onto this. Such information would provide better understanding of the motivating factors which perpetuate this behaviour, which in turn can be applied to methods aimed at preventing it. Therefore, the main aim of the present chapter is to explore the developmental factors and self/emotion-regulation strategies that are unique to animal abusers.

Thus, this study will examine the following hypotheses: (1) self-reported animal abuse perpetrators are more likely to report experiences of childhood animal abuse and childhood abuse and/or neglect; (2) animal abusers are more likely to report deficits in animal-oriented empathy, and factors associated with maladaptive regulation strategies (i.e., anger rumination, and suppression).

Study 1

Method

Participants

One hundred and three participants were recruited online through the Prolific Academic[2] crowd sourcing platform. Participants comprised of 54 (52.4%) males and 49 (47.6%) females, with ages ranging from 18 to 70 years old ($M = 35.11$, $SD = 13.07$).

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[2] Prolific academic is an online platform that allows for cost-effective recruitment of a diverse population sample (Peer et al., 2017).

Participants identified as predominantly White/Caucasian (88.3%) and Other (11.7%). All participants were residents from the UK and were paid £5.00 in compensation.

Design and Measures

Demographics. Participants were asked to report their age, gender, and ethnicity.

Aggression towards animals' scale (ATAS). We assessed animal abuse perpetration during childhood and adulthood using the Aggression Towards Animals Scale (ATAS; Gupta & Beach, 2001). We used 14 out of the 23 items in the scale to only account for behaviours deemed acts of active aggression (e.g., physical assault). Participants reported how frequently they had engaged in each form of animal abuse (e.g., "Pulled an animal's tail"; "Kicked an animal") using a 7-point scale, ranging from 1 (*Never*) to 7 (*More than 20 times*). To assess adulthood and childhood incidents separately, participants completed the measure twice, once instructing them to report incidents *before* the age of 16, and a second time asking them to report incidents *since* the age of 16. Sixteen years of age was deemed as an appropriate age threshold because in the UK it is legal to buy an animal, leave home, buy/rent accommodation, and seek employment at the age of 16. Higher scores indicated more incidents of aggression towards animals. The ATAS has previously demonstrated good internal reliability ($\alpha = .73$; Febres et al., 2014), and it was equally reliable in the current study (adult ATAS – $\alpha = .76$; child ATAS – $\alpha = .72$).

Childhood Trauma Questionnaire Short-Form (CTQ-SF). To establish whether participants had experiences of childhood abuse or neglect, we used the Childhood Trauma Questionnaire Short-Form (Bernstein & Fink, 1998). This 28-item self-report measure covers five dimensions of abuse and neglect, including: emotional abuse ($\alpha = .85$), physical abuse ($\alpha = .89$), sexual abuse ($\alpha = .82$), emotional neglect ($\alpha = .80$) and physical neglect ($\alpha = .87$). Participants indicated on a 5-point scale how true each statement was to them based on their own experiences, ranging from 1 (*True*) to 5 (*Very Often True*). Statements include: "Not

enough to eat" and "Was physically abused". Higher scores indicated increased experiences of childhood abuse and/ or neglect.

Anger Rumination Scale (ARS). Anger rumination (i.e., the tendency to focus one's attention on angry moods or anger-evoking experiences) was measured using the Anger Rumination Scale (Sukhodolsky, Golub, & Cromwell, 2001). This 19-item self-report scale consists of four subscales, including: angry afterthoughts (e.g., "When something makes me angry, I turn this matter over and over again in my mind"); thoughts of revenge (e.g., "When someone makes me angry I can't stop thinking about how to get back at this person"); angry memories (e.g., "I feel angry about certain things in my life"); and understanding of causes (e.g., "When someone provokes me, I keep wondering why this should have happened to me"). Participants indicated how well each statement described themselves and their responses to anger on a 4-point scale ranging from 1 (*Almost Never*), to 4 (*Almost Always*), with higher scores indicating a greater likelihood to ruminate. In the current study, the total score ($\alpha = .96$) and subscales angry afterthoughts ($\alpha = .91$), thoughts of revenge ($\alpha = .79$), angry memories ($\alpha = .87$), and understanding of causes ($\alpha = .83$) were reliable.

Emotion Regulation Questionnaire (ERQ). To assess which emotion regulation strategy an individual was likely to employ to cope with intense affective experiences, we used the Emotion Regulation Questionnaire (Gross & John, 2003). This 10-item self-report measure consists of two subscales: cognitive reappraisal (e.g., "When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking"; $\alpha = .77$), and expressive suppression (e.g., "I keep my emotions to myself"; $\alpha = .70$). Participants indicated how strongly they agreed or disagreed with the statements on a 7-point scale, ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Subscale scores were calculated by summing items with higher scores indicative of greater engagement in the strategy.

Emotional Toughness toward Animals (ETAS). We used the Emotional Toughness towards Animals scale (Gupta & Beach, 2000) to assess callousness towards non-human animals. This 10-item self-report measure is comprised 7 unempathetic statements and 3 empathetic statements, each judged using a 7-point scale based on the extent participants agreed or disagreed with each statement. The scale ranged from 1 (*Strongly Agree*) to 7 (*Strongly Disagree*), with higher scores indicating a more empathetic response ($\alpha = .77$). Example items included: "If I saw an animal in pain, I wouldn't be too upset", and "If I hurt an animal, I don't feel guilty afterward". The ETAS has previously demonstrated acceptable internal reliability ($\alpha = .77$; Gupta, 2008). In the current study, internal validity was also acceptable at .77.

Procedure

Following ethical approval from the University's Ethics Committee, participants were recruited via Prolific Academic to complete an online questionnaire via Qualtrics. The questionnaire took an average of 15.5 minutes to complete. Prior to taking part in the questionnaire, participants read an information sheet and provided their informed consent. To reduce question ordering effects, questionnaires and items were presented in a randomised order through the Qualtrics software. On completion, participants were fully debriefed and provided with contact information for support services, such as help-lines, if required.

Results

All analyses of study data were conducted through SPSS Statistics Version 24, using a $p < .05$ level of significance.

Bivariate Analyses

Animal abuse perpetration scores were positively correlated with emotional toughness towards animals ($r = .78$, $p < .001$) and gender ($r = -.23$, $p = .02$). Individuals who self-reported animal abuse were less empathetic towards animals and more likely to be male.

There were no other significant correlations between animal abuse perpetration scores and the remaining variables (see Table 1.).

Hierarchical Regression

A hierarchical regression analysis was conducted to test whether animal empathy (i.e., emotional toughness towards animals) and self-regulatory factors (i.e., anger rumination, emotion regulation) were significant predictors of animal abuse, after controlling for factors, such as gender and childhood abuse and/or neglect. In the first step, we entered gender and childhood abuse and neglect (i.e., physical, emotional, sexual), as predictors for animal abuse. These factors accounted for approximately 16% of the variance in animal abuse, $R^2 = .158$, $F (6, 95) = 2.97$, $p = .011$. Gender and emotional neglect were significant predictors of animal abuse, $b = -2.37$, $p = .003$, and $b = -.33$, $p = .011$. In the second step, we entered anger rumination, emotion regulation and animal empathy as additional predictors of animal abuse, controlling for the previous factors. Introducing these variables explained an additional 11% of the variance, $\Delta R^2 = .105$, $F (10, 91) = 3.24$, $p = .001$. At this step, gender ($b = -2.39$, $p < .001$), emotional neglect ($b = -.42$, $p = .002$), anger rumination ($b = .08$, $p = .015$), and animal-oriented empathy ($b = .11$, $p = .041$) were significant predictors of self-reported animal abuse (see Table 2.). A post hoc power analysis (Faul et al., 2009) for achieved power (R^2 increase) was also conducted. The achieved R^2 of 0.263 equals a medium effect size (f^2) of 0.142 (Cohen, 1988). The alpha level of 0.05 and $n = 103$ suggest a power of .80. Ideally, the minimum power required is 0.8 (i.e., 80%), which this study achieves.

Table 1. M*eans, standard deviations, and correlations among animal abuse, age, gender, childhood abuse/neglect, rumination, emotion regulation and animal-oriented empathy.*

Variable	Response Range	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Animal Abuse	14 -35	15.60	4.05	-										
2. Age (Years)	18 – 70	35.21	13.01	-.04	-									
3. Gender	1 – 2	1.49	0.50	-.23*	.17	-								
4. Emotional Abuse	5 – 24	8.58	4.41	.03	.10	.04	-							
5. Physical Abuse	5 – 22	6.51	3.07	.03	.17	.12	.79**	-						
6. Sexual Abuse	2 – 25	5.60	3.46	-.09	.05	.15	.59**	.50**	-					
7. Emotional Neglect	5 – 24	10.53	4.91	-.04	.19	-.15	.76**	.54**	.39**	-				
8. Physical Neglect	5 – 20	9.69	2.86	.11	.02	-.15	.50**	.31**	.28**	.53**	-			
9. Anger Rumination	19 – 74	38.53	12.84	.17	-.03	.01	.24*	.12	.11	.30**	.14	-		
10. Cognitive Reappraisal	17 – 42	29.52	5.49	-.03	-.01	.09	.04	.12	.02	-.12*	-.04	-.12	-	
11. Expressive Suppression	5 – 26	16.20	4.58	.01	-.10	-.32**	.06	.04	-.05	.16	.07	.38**	-.03	-
12. Animal Empathy	10 – 41	19.12	7.08	.25**	.02	-.29**	-.11	-.13	-.15	.06	-.04	.1	-.22*	.19

Note: p < .05; p < .001***

Table 2. *Results of hierarchical regression analysis predicting animal abuse.*

Step	Predictor	Unstandardised coefficients		Standardised coefficients		R^2	R^2 change	F	p
		B	SE	β	p				
1	Gender	-2.374	.783	-.304	.003*	.158	.158	2.97	.011*
	Emotional Abuse	.319	.196	.351	.108				
	Physical Abuse	-.066	.204	.050	.747				
	Sexual Abuse	-.126	.133	-.113	.345				
	Emotional Neglect	-.328	.126	-.410	.011*				
	Physical Neglect	.269	.158	.192	.091				
2	Gender	-2.385	.803	-.305	.004*	.263	.105	3.24	.001*
	Emotional Abuse	.347	.190	.383	.071				
	Physical Abuse	-.049	.197	-.037	.805				
	Sexual Abuse	-.118	.128	-.106	.358				
	Emotional Neglect	-.415	.129	-.519	.002*				
	Physical Neglect	.299	.151	.214	.050*				
	Anger Rumination	.078	.032	.258	.015*				
	Animal Empathy	.113	.054	.205	.041				
	Cognitive Reappraisal	-.008	.069	-.011	.909				
	Expressive Suppression	-.135	.089	-.158	.133				

*Note: n = 102; p < .05**

Mediation Analyses

Based on the significant factors from the regression analysis, a mediation analysis was conducted to explore whether (controlling for gender) anger rumination mediated the relationship between past experiences of emotional neglect and animal abuse. A significant model was found (see Figure 4). The relationship between emotional neglect experienced as a child and animal abuse perpetrated as an adult was explained by anger rumination.

Direct effect $B = -.14$, $p = .112$

Indirect effect $B = .05$, 95% CI [.01, .12]
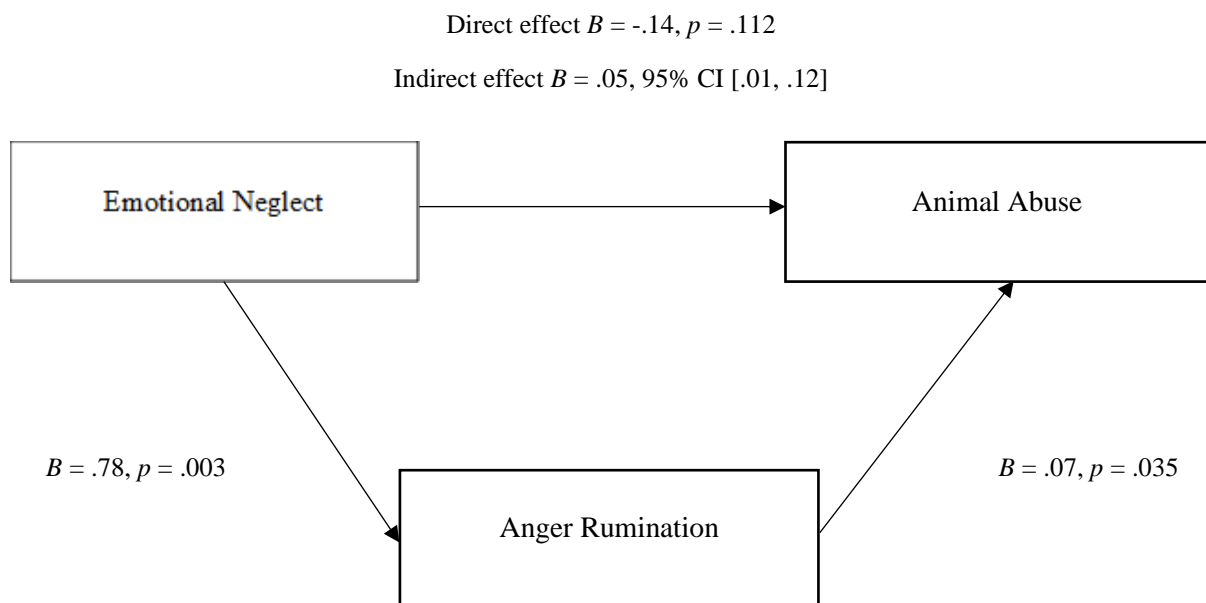
Figure 4: Conceptual depiction of the relationship between emotional neglect and animal abuse, mediated by anger rumination (controlling for gender; $n = 103$).

Discussion

Our aim was to see which sociodemographic and psychological (i.e., emotion-regulation, animal empathy) factors were associated with self-reported animal abuse. Taken from the current literature, two sociodemographic factors (i.e., childhood animal abuse, and childhood abuse and neglect), two self/emotion-regulation factors (i.e., emotion regulation, and anger rumination) and oanimal-appraisal variables (i.e., emotional toughness towards

animals) were examined. We had partial support for Hypothesis 1 whereby animal abusers were more likely to self-report experiencing emotional neglect. Consistent with Hypothesis 2, animal abusers showed an increased likelihood to engage in anger rumination and reported empathy deficits towards animals. Furthermore, the relationship between emotional neglect and animal abuse was mediated by anger rumination. Individuals who have experienced emotional neglect as a child and ruminate about angry feelings (arguably, related to this neglect), are more likely to engage in animal abuse as an adult. Contrary to our hypotheses, childhood animal abuse and maladaptive emotion regulation strategies (i.e., suppression) were not associated with self-reported animal abuse in adulthood.

Study 2

Study 1 has shown that individuals who experience emotional neglect as a child, and employ anger rumination, are more likely to engage in animal abuse. By adopting this approach, we may be overlooking the characteristics of those individuals who choose to abuse animals instead of people (i.e., animal abusers versus non-animal abuser offenders). Given that existing theories suggest that animal abusers are typically antisocial (Walter, 2013), and animal abuse forms part of their antisocial profile (Arluke et al.,1999), it is important to examine these characteristics between animal abusers, violent offenders, and non-offenders, to identify the factors truly unique to animal abusers. Based on this consideration, a second study was conducted to examine the sociodemographic, animal-appraisal variables and self/emotion-regulating factors that distinguish animal abusers from other types of offenders, and non-offenders.

Given the findings from Study 1 we examined the following hypotheses: (1) self-reported childhood animal abuse and childhood experiences of abuse and neglect will be significantly related to self-reported animal abuse, in comparison to other types of offenders and non-animal abusers. Animal abusers, like other offenders, would share similar childhood

adverse experiences (such as physical abuse), and these two groups would differ from the non-offender group. Where we predict the two groups would differ would be in their background experiences of animal abuse, whereby animal abusers would have been exposed to some form of animal abuse during childhood (e.g., engaging in animal abuse). (2) Animal abusers would differ from the violent offender and non-offender group across animal-appraisal variables (i.e., animal-oriented empathy), and self- and emotion-regulation variables (i.e., anger rumination, and difficulties with emotion regulation).

Method

Participants

One hundred and forty-nine participants were recruited online through the Prolific Academic crowd sourcing platform. Thirty-nine (26.2%) males and 110 (73.8%) females, with ages ranging from 18 to 64 years old ($M = 34.14$, $SD = 10$) were retained for the data analysis. Participants identified as White/Caucasian (92.6%), Asian (3.4%), Black (2.7%) and Other (1.4%). All participants of this study were residents from the UK and were paid £5.00 in compensation.

Design and measures

The design and measures were identical to that employed in Study 1 with a few exceptions. In the current study the Emotional Toughness towards Animals scale (ETAS) was omitted, and the following additional measures were included:

Illegal Behaviour Checklist (IBC). To assess illegal behaviours, this study utilised the IBC (McCoy et al., 2006). This 22-item self-report measure includes four subscales, including: status offenses (e.g., "Ran away from home for more than 3 days"; $\alpha = .70$); drug crimes (e.g., "Sold marijuana"); property crimes (e.g., "Shoplifted something worth more than £20"; $\alpha = .73$); and, violent crimes (e.g., "Been in a gang fight"; $\alpha = .78$). Participants indicated using a *yes-no* response, whether or not they had engaged in each of the behavioural

statements. Total scores were calculated by counting the number of questions in which the participant endorsed the behaviour. Higher scores indicate a tendency to participate in a greater number of criminal behaviours. Previous studies have found good internal validity with overall reliability at .89 (Knight, Simpson, & Morey, 2002). In the current study, internal validity was acceptable at .76.

The Animal Empathy Scale (AES). To assess empathy towards non-human animals, this study utilised the AES (Paul, 2000). This 22-item self-report measure is comprised of 11 unempathetic statements and 11 empathetic statements, each judged using a 7-point scale based on the extent participants agreed or disagreed with each statement. The scale ranged from 1 (*Strongly Agree*) to 7 (*Strongly Disagree*), with higher scores indicating a more empathetic response. Example items included: "Animals deserve to be told off when they're not behaving properly", and "Pets have a great influence on my mood". The AES has previously demonstrated good internal reliability ($\alpha = .78$; Paul, 2000). In the current study, internal validity was good at .87.

Difficulties in Emotion Regulation Scale (DERS). To assess emotion dysregulation, this study utilised the DERS (Gratz & Roemoer, 2004). This 36-item self-report measure consists of six subscales, including: Non-Acceptance of Emotional Responses (Non-acceptance; e.g., "When I'm upset, I feel ashamed with myself for feeling that way"); Difficulties Engaging in Goal-Directed Behaviour (Goals; e.g., "When I'm upset, I have difficulty concentrating"); Impulse Control Difficulties (Impulse; e.g., "When I'm upset, I lose control over my behaviours"); Lack of Emotional Awareness (Awareness; e.g., "When I'm upset, I acknowledge my emotions"); Limited Access to Emotion Regulation Strategies (Strategies; e.g., "When I'm upset, I believe that I'll end up feeling very depressed"); and, Lack of Emotional Clarity (Clarity; e.g., "I have no idea how I am feeling"). Participants indicated how well each statement applied to them on a 5-point scale, ranging from 1 (*Almost*

Never) to 5 (*Almost Always*), with higher values indicating increased emotion dysregulation. Good internal consistency coefficients have been found for each subscale, ranging from .80 to .89 (Gratz & Roemer, 2004). In the current study, internal validity for the total score (α = .95) and subscales non-acceptance (α = .91), goals (α = .87), impulse (α = .87), awareness (α = .78), strategies (α = .91), and clarity (α = .80) was acceptable.

Impression Management. The present study utilised the impression management subscale of the Paulhus (1998) Deception Scales, as a measure of social desirability responding. The 20-item self-report measure consists of items such as "I always obey laws even if I'm unlikely to get caught". Participants indicated their response on a 5-point Likert-type scale ranging from 1 (*Not True*) to 5 (*Very True*). Paulhus (1998) conducted extensive psychometric testing with a variety of samples (i.e., general population, students, prison inmates, and military recruits) and established fairly high internal reliabilities across all scales (i.e., impression management, α > 0.81). In the current study, internal validity was acceptable at .79.

'Independent Variable'. Consistent with the study's hypotheses, the IV consisted of three groups: animal abusers, violent offenders and non-offenders.

To examine the differences between these groups we trichotomised the data. Animal abusers (*n* = 24) were classed as participants who indicated that they had engaged in any combination of the animal abuse items two or more times (adopting the same cut-off as Sanders, Henry, Giuliani, & Dimmer [2013]). With a composite response range between 0 and 84, participants who scored 2 and above were classified as animal abusers. The violent offender group (*n* = 22) consisted of participants who scored less than 2 on the animal abuse measure but indicated 'yes' on at least one of the items on the violent subscale of the Illegal

Behaviour Checklist (i.e., response range = 0-3; cut-off score = 1)[3]. The non-offender group (n = 103) consisted of participants who reported no previous engagement in animal abuse or any antisocial behaviours.

Procedure

Following ethical approval from the University's Ethics Committee, participants were recruited via Prolific Academic to complete an online questionnaire via Qualtrics. The questionnaire took an average of 17.6 minutes to complete. Prior to taking part in the questionnaire, participants read an information sheet and provided their informed consent. Questions were presented in a randomised order through the Qualtrics software to avoid any question order effects. On completion, participants were fully debriefed, and provided with contact information for support services, such as help-lines, if required.

<div align="center">Results</div>

All analyses of study data were conducted through SPSS Statistics Version 24, using a $p < .05$ level of significance.

Bivariate Analyses

We conducted ANOVAs to see whether the socio-demographic characteristics and response related variables (i.e., impression management) varied as a function of the independent variable (i.e., animal abuser, violent offender, and non-offender; see Table 3. for means, standard deviations, F statistics and effect sizes). The results showed differences between animal abusers and non-offenders across physical neglect and emotional neglect. Violent offenders and non-offenders differed across sexual and physical abuse. The animal abuser group did not differ from the violent offender and non-offender groups on impression management.

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[3] The Illegal Behaviour Checklist (McCoy et al., 2006) encompasses all antisocial behaviours, such as truancy and drug related behaviours. For the purpose of this research, we were interested in how animal abusers differ from violent offenders, as opposed to less severe anti-social behaviour.

Group comparison on self/emotion-regulation factors

Next, we conducted a MANOVA to see whether the dependant variables (i.e., self/emotion-regulation factors) varied as a function of the independent variable (i.e., animal abuser, violent offender, or non-offender groups) within the same model (see Table 4. for means, standard deviations, F statistics, and effect sizes). We found an overall significant model (F (26, 268) = 1.83, p = .010, Λ = .72, ηp^2 = .15). When examining the univariate analysis within the model we found significant effects for all anger rumination subscales, and reappraisal. Animal abusers scored higher on the anger rumination subscales (i.e., angry afterthoughts, thoughts of revenge, angry memories and understanding of causes) and scored lower on reappraisal than violent offenders. There were no significant differences between groups for difficulties with emotion regulation and animal-oriented empathy. A post hoc power analysis (Faul et al., 2009) for achieved power was also conducted. The achieved Pillai V of 0.297, with three groups and 13 response variables equals a medium effect size (f^2) of 0.174 (Cohen, 1988). The alpha level of 0.05 and n = 149 suggest a power of .99 which is sufficient.

Table 3. *Bivariate relationships between animal abuse perpetration and sociodemographic characteristics.*

Variable	Response Range	Animal Abuser M (SD) (n = 24)	Violent Offender M (SD) (n = 22)	Non-Offender M (SD) (n = 103)	F	df	p
Age (Years)	18 – 64	34.00 (10.00)	34.50 (10.65)	34.10 (9.95)	.02	2, 148	.983
Gender	1 - 2	1.67 (.48)	1.68 (.48)	1.77 (.43)	.71	2, 148	.492
Physical Abuse	1 – 4	1.58_{ab} (1.14)	1.77_a (1.19)	1.24_b (.72)	4.10	2, 148	.019*
Emotional Abuse	1 – 4	2.00 (1.18)	2.05 (1.17)	1.60 (.94)	2.71	2, 148	.070
Sexual Abuse	1 – 4	1.17_{ab} (.64)	1.68_a (1.29)	1.20_b (.69)	3.49	2, 148	.033*
Physical Neglect	1 – 4	2.79_a (1.10)	2.50_{ab} (1.14)	2.22_b (1.03)	3.05	2, 148	.050*
Emotional Neglect	1 – 4	2.42_a (1.14)	2.00_{ab} (1.07)	1.79_b (1.05)	3.49	2, 148	.033*
Impression Management	0 – 20	6.75_{ab} (3.46)	5.36_a (3.00)	7.92_b (3.62)	5.23	2, 148	.006*

Note: Means that do not share subscripts differ at $p < .05$; * $p < .05$

Table 4. *Group comparisons on psychological characteristics*

Measures		Animal Abuser (n = 24)			Violent Offender (n = 22)			Non-Offender (n = 103)			F	p	$\eta^2\rho$
		M	SD	95% CI	M	SD	95% CI	M	SD	95% CI			
Anger Rumination													
	Angry Afterthoughts	15.17$_a$	3.33	[13.36, 16.98]	11.57$_b$	4.44	[10.73, 12.42]	14.73$_{ab}$	4.86	[12.89, 16.56]	9.68	.000**	.117
	Thoughts of Revenge	8.83$_a$	2.16	[7.84, 9.83]	6.73$_b$	2.29	[6.25, 7.20]	7.86$_{ab}$	3.31	[6.84, 8.89]	8.09	.000**	.100
	Angry Memories	13.54$_a$	3.08	[12.14, 14.95]	10.06$_b$	3.37	[9.39, 10.73]	11.64$_{ab}$	4.08	[10.19, 13.08]	10.68	.000**	.128
	Understanding of Causes	10.83$_a$	2.82	[9.57, 12.10]	8.62$_b$	2.97	[8.02, 9.23]	9.91$_{ab}$	3.93	[8.60, 11.22]	5.68	.004*	.072
Emotion Regulation Strategy													
	Reappraisal	27.21$_a$	7.44	[24.71, 29.71]	30.80$_b$	5.83	[29.59, 32.00]	29.55$_{ab}$	6.38	[26.94, 32.15]	3.35	.038*	.044
	Suppression	15.38	4.40	[13.71, 17.05]	16.04	4.24	[15.23, 16.85]	16.55	3.32	[14.80, 18.29]	0.47	.628	.006
Difficulties with Emotion Regulation													
	Non-accept	14.88	5.53	[12.52, 17.23]	14.04	5.82	[12.90, 15.17]	14.41	6.20	[11.95, 16.87]	.021	.809	.003
	Goal-direct	15.92	4.64	[13.98, 17.85]	14.67	4.73	[13.73, 15.61]	15.86	5.45	[13.83, 17.90]	1.01	.364	.014
	Impulse Control	14.08	6.35	[11.94, 16.23]	12.11	4.93	[11.08, 13.13]	14.45	5.46	[12.24, 16.67]	2.70	.070	.036
	Emotional Aware	17.71	4.22	[15.93, 19.48]	15.98	4.36	[15.13, 16.83]	17.45	4.56	[15.61, 19.30]	2.17	.118	.029
	Strategies	20.33	7.59	[17.33, 23.34]	17.88	7.11	[16.45, 19.32]	21.32	8.26	[18.22, 24.42]	2.61	.077	.035
	Clarity	11.92	3.40	[10.40, 13.43]	11.01	3.76	[10.28, 11.74]	12.27	3.21	[10.70, 13.84]	1.38	.254	.019
Empathy towards Animals		107.54	16.73	[100.14, 114.94]	116.33	16.49	[112.76, 119.02]	113.64	16.48	[105.91, 121.36]	2.265	.108	.030

Note: Means that do not share subscripts differ at *p* < .05; * *p* < .05 ** *p* < .001

Discussion

To expand upon Study 1, we wanted to see if specific sociodemographic and psychological factors could distinguish animal abusers from violent offenders and non-offenders. We obtained partial support for Hypothesis 1 whereby animal abusers were more likely to self-report experiencing emotional neglect and physical neglect than non-offenders. Consistent with Hypothesis 2, we did find animal abusers to be distinguished from violent offenders across facets of self/emotion-regulation (i.e., cognitive reappraisal and anger rumination). Specifically, animal abusers showed increased anger rumination and decreased cognitive reappraisal than violent offenders. Childhood animal abuse and animal empathy were not significant distinguishing factors between animal abusers and violent offenders or non-offenders. Difficulties with emotion regulation were not significantly related to the independent variable.

General Discussion

Studies 1 and 2 were informed by a theoretical proposition that maladaptive emotion regulation plays a facilitative role in the perpetration of animal abuse. The specific emotion regulation strategies and associated processes (i.e., anger rumination) related to animal abuse were explored. The factors associated with animal abuse in past research (such as childhood exposure to animal abuse, animal-oriented empathy, and emotion regulation) were examined. Contrary to existing research, childhood exposure to animal abuse was not a significant factor (Study 1 and Study 2). Existing research suggests that individuals who engage in animal abuse as a child are more likely to engage in animal abuse as an adult (Tallichet & Hensley, 2005). Specifically, children who are exposed to animal abuse, directly or indirectly, are more likely to engage in animal abuse themselves (Currie, 2006; DeViney, Dickert, & Lockwood, 1983; Thompson & Gullone, 2006). Given the association between animal abuse

exposure and other antisocial behaviour (including violent behaviour; Vaughn et al., 2009), it would actually be consistent with the literature to find that animal abusers had similar childhood experiences, including exposure to animals. It is possible that the reliance on self-report measurements for childhood animal abuse are a limitation in both these studies. Given that we were asking questions about problematic behaviours, participants may have responded with a social desirability bias. A minimisation/denial measure was included in both study 1 and 2 but it was not significant.

Adverse childhood experiences were also examined based on research which has shown that harsh or punitive parenting styles are more frequently reported by animal abusers, compared to non-animal abusers (Flynn, 1999). Results showed that animal abuse was associated with self-reported emotional neglect (Study 1 and 2) and physical neglect (Study 2). These findings support existing research which has linked maladaptive upbringings to later acts of antisocial behaviour (Flynn, 1999). Specifically, in our sample, animal abusers are more likely to experience emotional and physical neglect throughout their childhood.

Animal-oriented empathy and emotion-regulation strategies were also examined in self-reported animal abusers. The findings from Study 1 support existing research which has highlighted empathy deficits as a key factor contributing to the development of animal abuse behaviour (Gullone, 2012, 2014). Therefore, it is unsurprising to find that having an insensitive attitude or cruel disregard towards animals specifically is associated with perpetrating this type of abuse. This further explains why some people choose to direct their aggression towards animals, as opposed to humans. However, Study 2 did not find empathy to be a unique characteristic of animal abusers compared to violent offenders and non-offenders. Given that we did not find any associations between childhood exposure to animal abuse and adult perpetrated animal abuse, it is then surprising that we did find differences in animal-oriented empathy (arguably a sequelae of childhood exposure to animal harm). This

leaves an avenue for future research to replicate, and further explore whether there is a more complex explanation. More recently, Alleyne and Parfitt (2018) concluded that the combined influence of empathy deficits and anger regulation issues were more indicative of animal abuse perpetration, rather than their influence independent of each other. Therefore, it is possible that there are additional variables interacting with animal-oriented empathy to facilitate animal abuse.

A related construct to emotion regulation, anger rumination, was distinctly associated with animal abuse behaviour in Study 1, whereby it mediated the relationship between childhood emotional neglect and animal abuse. Previous studies have shown that individuals who have experienced childhood maltreatment are more prone to anger rumination (Connor et al., 2004; Spasojevi & Alloy, 2002). Specifically, adverse childhood experiences can cause a discrepancy between the present state (i.e., neglected) and desired state (i.e., cared for) which triggers rumination (Martin & Tesser, 1996). Internal conflict such as this can cause hypersensitivity to anger (Pollak, Messner, Kistler, & Cohn, 2009) which might help to explain why rumination mediates the relationship between emotional neglect as a child and animal abuse as an adult. Furthermore, Study 2 also found anger rumination to be uniquely predictive of animal abusers, compared to violent offenders. Researchers generally consider anger rumination to be a maladaptive emotion regulation strategy that repeatedly and negatively self-focuses on negative events and emotions (Roley et al., 2015; Watkins & Nolen-Hoeksema, 2014). Taken with the findings on animal empathy (Study 1), this supports existing arguments that animal-related empathy may not be uniquely predictive of animal abuse perpetration; rather, the interaction between anger regulation and empathy deficits is more important as a facilitator of this abusive behaviour.

Similarly, Study 2 shows that animal abusers engage in less cognitive reappraisal than violent offenders. Cognitive reappraisal is generally considered as an adaptive emotion

regulation strategy as it effectively reduces physiological, subjective and neural emotional responding (Gross, 1998). Thus, this finding lends preliminary support to the argument made in Chapter 1, that maladaptive emotion regulation facilitates adult perpetrated animal abuse. When individuals do not engage in reappraisal effectively, they are more likely to engage in animal abuse.

The combined results of these studies extend previous research in finding that animal abuse is associated with emotion regulation over and above what we would find linked to interpersonal aggression. Specifically, *maladaptive* emotion regulation strategies (i.e., anger rumination, and cognitive reappraisal deficits) are linked to the expression of aggression towards animals. Our results suggested that individuals who have experienced emotional neglect as a child and ruminate about angry feelings (arguably, related to this neglect), are more likely to engage in animal abuse as an adult. However, the exact sequence of these emotions, thoughts and actions that lead to the perpetration of animal remains to be explored. Additionally, the exact mechanism which facilitates the relationship between anger rumination and animal abuse warrants further exploration.

CHAPTER THREE

Exploring the link between emotion regulation and animal abuse: A

Qualitative Approach

Introduction

As reported in the preceding chapters, individuals who are motivated to engage in animal abuse employ maladaptive self-regulating strategies which facilitates the perpetration of this behaviour. By adopting the use of maladaptive emotion regulation strategies (i.e., anger rumination, and/or decreased cognitive reappraisal), the likelihood of negative emotional reactions to distressing stimuli is increased. We postulate that the under-regulation (i.e., impulsive action), or mis-regulation (i.e., thoughtful action) of emotions facilitates animal abuse. These outcomes mimic the two styles of animal abuse taken from the animal abuse literature; direct (i.e., the target of aggression is the perceived provocateur) and indirect (i.e., displaced aggression towards an animal).

Whilst the aforementioned studies have furthered our understanding of the motivations of animal abuse, questionnaire-based studies in this area are limited in terms of the amount of in-depth data they can provide about the complex emotion-regulation related processes which facilitate animal abusive behaviour. Face-to-face interviews have additional drawbacks. For example, interviewees may experience feelings of shame and embarrassment, or be susceptible to social desirability effects (Grimm, 2010). The current study sought to address these limitations by qualitatively analysing incidents of animal abuse disclosed via an online questionnaire. This method bypasses the problems associated with interviewing perpetrators noted above, and is wider ranging and more generalisable to the potentially undetected animal abuse that may be unknown to authorities. Specifically, the current study sought to explore the emotion regulation strategies in a population of animal abusers,

including the method of abuse committed, the circumstances which surrounded the abuse, how the perpetrator explains their motivations for the abuse, and their perceived consequences of the abuse.

Study 3

Method

Participants

One-hundred and seventy-one participants were recruited online through the Prolific Academic crowd sourcing platform. Fifty-one were excluded from the analysis due to failing attention check items. The remaining participants were included in the analyses ($n = 120$); 58 males (48.3%), 59 females (49.2%) and 3 (2.5%) who preferred not to disclose. Participants' ages ranged from 18 to 65 years old ($M = 34.73$, $SD = 11.38$). The ethnicity of the participants was predominantly White/Caucasian (90.8%), followed by Asian (5.0%), Other (1.7%), East Asian (0.8%), Latino (0.8%) and Native American (0.8%). All participants of this study were residents from the UK and were paid £5.00 in compensation.

Design and Measures

Pre-screening Measure

Aggression towards animals' scale (ATAS). To assess abuse towards non-human animals in adulthood, this study utilised the ATAS (Gupta & Beach, 2001). This 23-item scale was amended so that only physical items were included, resulting in 19-items in the final measure. Participants reported how many times they had engaged in each abusive behaviour towards an animal (e.g., "*Pulled an animals tail*"; "*Kicked an animal*") using a 7-point scale, ranging from 0 (*Never*) to 6 (*More than 20 times*). To assess adulthood incidents independently, participants were asked to report incidents since the age of 16. Sixteen years of age was deemed as an appropriate age bracket, as under UK laws it is legal to buy an

animal, leave home, buy/rent accommodation, and seek employment at this age. Thus, they

hold similar responsibilities to that of an adult. The ATAS has previously demonstrated good

internal reliability ($\alpha = .73$; Febres et al., 2014). In the current study, internal validity for the

adulthood scale ($\alpha = .79$) and childhood scale ($\alpha = .75$) was acceptable. Participants who

indicated that they had engaged in abusive behaviour two or more times administered open-

ended, qualitative questions for further detail. If participants did not indicate prior

engagement in animal abuse they were re-directed to end of the survey.

Qualitative Measures

A web-based open-ended questionnaire schedule was developed for the purpose of

this study addressing the following areas: a detailed description of the most severe incident,

emotions/feelings leading up to the incident, significant events leading up to the incident,

emotions/feelings during the incident, emotion/feelings following the incident, importance of

engaging in the behaviour, expectations of consequences, perception of animal-victims

feelings during the incident, and likelihood of behaving the same under similar

circumstances. Participants' responses to each of the questions were combined into a single

statement so that each response could be considered in the context of the details provided.

Procedure

Following ethical approval from the University's Ethics Committee, participants were

recruited via Prolific Academic to complete an online questionnaire on Qualtrics. The

questionnaire took an average of 15.45 minutes to complete. Prior to taking part in the

questionnaire, participants read an information sheet and provided their consent. Participants

completed a pre-screening measure using the ATAS (Gupta & Beach, 2001) which assessed

self-reported incidents of animal abuse. Participants who indicated engaging in any form of

animal abuse went on to complete the qualitative measures. On completion, participants were

fully debriefed, and provided with contact information for support services, such as help-lines, if required.

Data analysis

The researcher independently analysed a total of 49 participants' responses using thematic analysis (Braun & Clark, 2006). This was considered the most appropriate method of analysis as each animal abuser's accounts of the incident and its accompanying emotions can be interpreted independently based on the contextual factors surrounding each scenario. Specifically, *theoretical* thematic analysis was applied given its ability to describe and interpret data based on a specific research question and/or the analyst's focus (Maguire & Delahunt, 2017).

In line with Braun and Clark's (2006) six-phase guide, each of the responses were read and re-read to familiarise the researcher with the data. The second phase required the production of codes from the data so that the researcher would be able to simplify and focus on its unique characteristics. This involves reading carefully through the data, line by line, and "dividing it into meaningful analytical units" (Maree, 2016). In line with phases three and four, the resulting codes were then accumulated into possible themes and reviewed to make sure they were consistent with the coded responses throughout the entire data set.

For the final phases, a thematic map was created to visually present the codes, themes, and their relationships (Ryan & Bernard, 2000). Care was taken not to develop themes based on the questions asked, which is a common pitfall in thematic analysis (Braun & Clark, 2006). Subsequent to the researcher identifying themes and excerpts to support each theme, a second coder confirmed and validated each theme with 50 percent of the data (see Miles & Huberman, 1994). The principle researcher calculated the average percentage of agreement between the researchers with regards to the themes identified, and a good level of inter-coder reliability was reached (90%). This way of calculating percentage agreement is considered an

important criterion for judging the value and rigour of qualitative research (e.g. Rourke, Anderson, Garrison, & Archer, 2007).

Results

From the analysis of the 49 responses, four themes were identified: *Types of Animal Abuse; Lack of Emotional Control; Emotional Reaction; Animal Empathy.* Each of the four themes is comprised of subthemes which have been detailed below. To provide examples of each theme, extracts from participants responses have also been included. These examples were selected based on how well they illustrated the theme/subtheme depending on their clarity and representativeness.
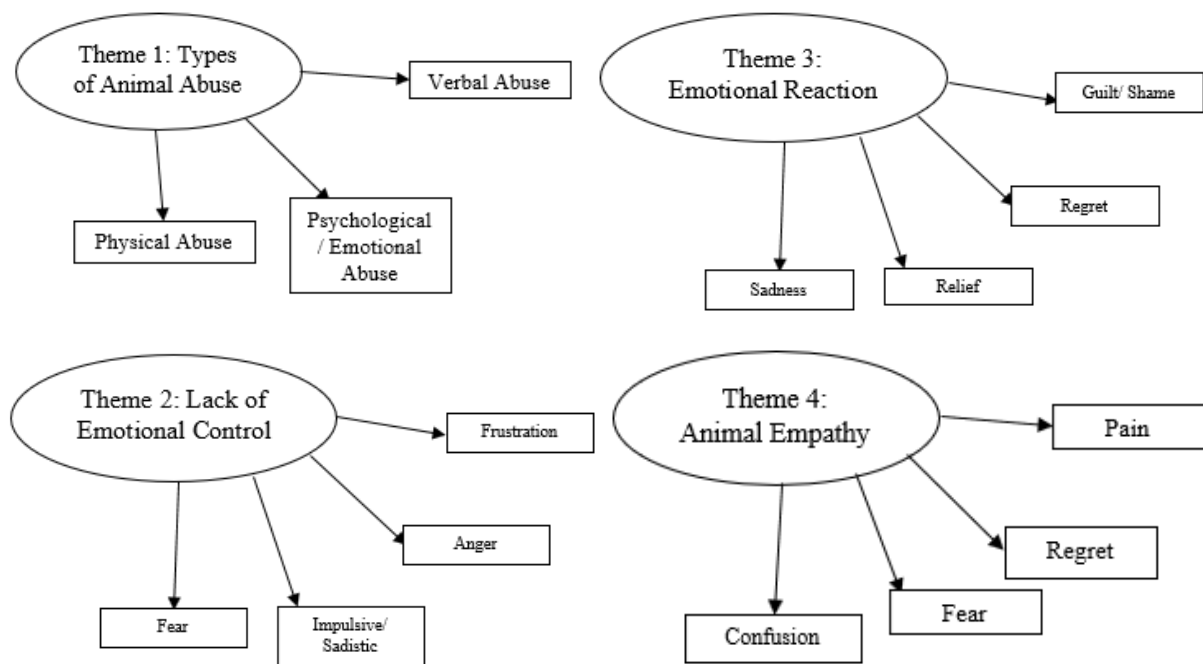
Figure 5: Thematic map of themes and subthemes.

Theme 1: Types of Animal Abuse

The first theme identified was the *Types of Animal Abuse* ($n = 49$) perpetrated by the respondents, which comprised of four subthemes. The first subtheme was *Physical Abuse* ($n = 21$). Numerous respondents reported incidents which involved a form of physical abuse

towards an animal. For example: "*Gave an animal a smack", "Kicked the animal", "I put my fingers around its neck and squeezed it*", and "*I shoved it with my foot and it hit the wall*".

Within this subtheme, five respondents reported killing animals which they regarded as vermin or for hunting purposes. Respondents were explicitly asked to describe incidents of intentional pain or suffering inflicted upon an animal, excluding any caused by hunting or for slaughtering purposes. Given that respondents detailed these incidents despite the instructions, they evidently did not identify this behaviour as hunting or slaughtering. Instead, they identified these incidents as an example of intentional pain or suffering inflicted upon an animal (i.e., animal abuse). As such, these incidents were retained for the analysis. For example: "The mice were trapped on a glue board, and in order to kill it, I placed the mouse and board in a plastic bag and dropped a brick on it", "I set mouse traps", and "The fish was relatively small (mackerel) and was stunned/killed by hitting it hard in the head".

The second subtheme was *Verbal Abuse* ($n = 25$)*.* Respondents frequently reported shouting at their pet, for instance: "*I've only ever shouted or yelled at an animal*", "*The most I have done is shouted at my dog for barking non-stop*", and "*I shouted at my partner's guinea pig when it urinated on me*".

The third subtheme identified for *Types of Animal Abuse* was *Psychological/ Emotional Abuse* ($n = 9$). A few respondents reported various types of psychological abuse towards their companion animals as a result of mis-behaviour, such as:

"...deliberately tried to intimidate a lairy cat"

"I locked my cat in the shed for a day, she kept running away, but all I wanted was for her to learn, she was young at the time"

"I intimidated our dog through sustained face-to-face eye contact when it becomes aggressive"

Overall, Theme 1 (*Types of Animal Abuse*) illustrates the most severe types of self-reported animal abuse carried out in a general population sample. The most common type of abuse reported amongst respondents was *verbal abuse*. However, in most of these instances the severity of these acts was not enough to warrant criminal proceedings based on Animal Welfare Law. Respondents who reported engaging in this behaviour made reference to utilising it as a means of training, or disciplining their pet. *Physical abuse* was also commonly reported by respondents. Whilst some respondents argued that this was also a means of training or disciplining their pet, most incidents of this behaviour (i.e., kicking squeezing, smacking) could be viewed as offences based on the Animal Welfare Act 2006.

Theme 2: Lack of Emotional Control

The second theme identified was *Lack of Emotional Control* ($n = 42$). Numerous respondents reported that they were not in control of their emotions during the incident, for example: "*I was experiencing fear and stress and let my emotions control me*", and "*I lost control for a split second*". Within this theme, four subthemes were identified. The first subtheme was *Frustration* ($n = 20$), which related to respondents who abused animals as a result of feelings of frustration. Within this theme there were those who felt frustrated as a direct result of the animals' behaviour, such as:

"*It had been a problem for several weeks and I had tried different and calmer methods to stop it happening but the yelling was a final resort and I felt quite annoyed and frustrated at the time*"

"*It was getting very frustrating. When I felt we were getting somewhere with housetraining he pooped in the front room - even though he knew he should go outside*"

"*I have shouted at an animal on a couple of occasions because it wouldn't do what I had asked it to do repeatedly and firmly. I wouldn't say it was intentional though - just out of frustration*"

Alternatively, there were also those who felt frustration as a result of external factors, and displaced that frustration on to the animal. For example, one respondent stated, "*I was frustrated with other things and had lots on my mind at the time. I was taking my frustrations out on the dog having a particularly stressful week.",* and another stated that *"I was excited about training a new puppy. But frustrated because training was harder than expected. I was frustrated and cold, so I didn't have as much patience as I should have done".*

The second subtheme identified within L*ack of Emotional Control* was *Anger* (*n* = 19). In these incidents, the perpetrators reported engaging in abusive behaviour as a result of feelings of anger directly caused by the animal:

"The worst I have done is a smack when a dog I had chewed up the netting of the trampoline and I lost my temper"

"It was a spur of the moment reaction to the naughty behaviour, probably done out of anger. I would not plan to do this"

"I felt angry and annoyed that the cat had reacted to me like this - so I'd deliberately have the same kind of reaction back"

As with the previous theme, there were also incidents where the abuse was attributed to anger caused by external factors, which was subsequently directed towards an animal:

"My job was very stressful and sometimes it was hard to manage that. The horse was misbehaving and I couldn't get it to do what I wanted, I lost my patience and lashed out. I was angry"

"I know now that it was because he was anxious at being separated from me, but at the time I was just angry that he'd wrecked the sofa beyond repair, and to buy a new one would be a struggle. During this period of my life I was having major struggles with my mental health, I was in my 20's and didn't have the tools such as meditation and exercise to make me feel better, that I do now. I was often very anxious and on edge during this time. I missed my

family. I lived 300 miles from my parents so didn't have the support I needed. I was stressed and let my emotions take control of me"

One respondent reported abusing an animal as a means of protecting their own companion animal: *"Another dog was attacking mine, I kicked it hard to get it off. Anger and concern took over completely".* The respondent goes on to justify the behaviour by stating "*I was protecting my pet".*

The third subtheme was *Fear* ($n = 9$). A few respondents reported that they had engaged in abuse towards an animal as a direct consequence of being fearful for the safety of their own animal, or through fear of being threatened by the animal:

"The worst thing I've done to a dog is to push it away with my foot as it attempted to go for me while I was on my bike. I wasn't angry, just fearful of being bitten"

"When she was young, I used to smack her on her hindquarters when she was too rough playing with my nieces. Fear for the child, mainly, I just worried that she might nip my niece"

The final subtheme within *Lack of emotional control* was *Impulsive/Sadistic* ($n = 4$), which a few respondents linked to their abuse of an innocent animal:

"I was not angry at it or anything I just felt an impulse telling me to squeeze it. It was more out of curiosity of what would happen/ how it would react rather than anger or hatred"

"It was a cat. I shoved it with my foot and hit the wall. No visible wounds but it must have hurt. I was a teenager so hormones kicked in so I was quite hyperactive, felt anger sometimes with no reason, felt like I was against the world. [...] I just acted, without thinking"

Theme 2 (*Lack of Emotional Control*) along with its subthemes demonstrates the different emotions involved in the offence process. In Chapter 1, the under-regulation of emotions was introduced as a potential facilitator of animal abuse (see Chapter 1). Arguably, the motivating emotions which have emerged from this data are largely representative of the

under-regulation of emotions. For example, individuals who under-regulate emotions, such as *anger*, are more likely to engage in aggressive behaviour (Roberton, Daffern, & Bucks, 2014). Furthermore, individuals who are unable to avoid or suppress their emotion responses also fail to inhibit *impulsive* reactions, as evidenced above. As with Theme 1 (*Types of Abuse*), respondents lack of emotional control was largely motivated by trying to regain control of their animals, or to discipline them. However, subtheme 4 (*Impulsive/Sadistic*) stands out from the other subthemes because although respondents were impulsive, they also demonstrated (1) a lack of empathy and (2) more of a behavioural impulse rather than an emotional impulse.

Theme 3: Emotional Reaction

The third theme identified within the data was *Emotional Reaction* (*n* = 42), which captures the perpetrators' initial emotion reaction to their abusive behaviour. The first subtheme within this theme was *Sadness* (*n* = 17). One respondent stated: "*Upset, felt bad afterwards*" and another stated that: "*I still feel upset and uncomfortable to this day and would be unlikely to put myself in that position again*". One respondent even engaged in caring behaviour immediately after the abuse: "*Felt sad and immediately hugged the pet*".

The second subtheme to be identified was *Guilt/Shame* (*n* = 19). Feelings of guilt or shame for their actions was a common emotional reaction for perpetrators in this sample: "*I felt guilty and felt like I was useless for not being able to manage the situation or get the animal to behave*"

"*I felt shameful and a bit guilty. My frustration was at other things and I was taking it out on the animal*"

Of the perpetrators who admitted feelings of guilt as a result for their actions towards the animal victims, a few went on to further justify the behaviour: "*I felt guilty, however, I knew*

that it was good intentions of training my pet", "*I felt a bit guilty but had to make her stop barking so I could sleep*", and "*I felt guilt and sorry, but I believed it was for the best*".

The third subtheme for *Emotional Reaction* was *Regret* (*n* = 9). Despite subtheme 3 (*Regret*) being arguably similar to subtheme 2 (*Guilt/Shame*), Berndsen, Van der Pligt, Doosje, and Manstead (2004) recently argued that the most important distinction between regret and guilt is whether people are responsible for negative outcomes for *themselves* (regret) or *for others* (Guilt). Given that human-oriented empathy and animal-oriented empathy are independent constructs, we assessed these emotions separately to reflect this. Subtheme 3 (*Regret*) is illustrated by the following extracts:

"I wouldn't say it was intentional though - just out of frustration and I regretted doing it"

"I saw the red mist I think it would be fair to say I lost it. I immediately regretted it"

"Shouting at pets to get them to behave is often an action I regret and feel ashamed for acting this way"

Respondents within this subtheme also anticipated different behavioural outcomes should a similar situation present itself: "*It has definitely changed the way I would behave*", and "*I would like to think that I would behave different if this happened again. It's hard when an animal does something wrong to not express your feelings about it physically so that they can understand that it was wrong. But I don't think I would resort to smacking a dog again*".

The final subtheme within Theme 3 was *Relief* (*n* = 11). This subtheme links to Theme 2's subtheme of *Fear* due to the circumstances which provoked the abuse (i.e., engaged in abuse towards an animal as a direct consequence of being fearful for the safety of their own animal or through fear of being threatened by an animal) being evaded or overcome successfully:

"Relief that my dog wasn't severely injured"

"Immediately after the incident I was a little shaken but also relieved. Neither myself or the dog came to any harm and the whole incident was forgotten by that evening"

Overall respondents' emotional reactions to their own abusive behaviours are generally negative. While it has been shown that violent acts do not typically improve mood (Geen & Quanty, 1977), there is evidence that some people engage in aggressive behaviour in the hope that it will make them feel better (Bushman, Baumeister, & Phillips, 2001). Evidently in this sample, most respondents emotional state did not improve after the behaviour, which explains why they reported emotions such as sadness and shame. On the other hand, subtheme 4 (*Relief*) would suggest that for some the abusive behaviour has achieved their desired emotional state. However, in these instances, the abusive behaviour was generally engaged in as a means of protecting their companion animal.

Theme 4: Animal Empathy

The final theme identified within the data was *Animal Empathy* ($n = 39$). The first subtheme within this theme is *Pain* ($n = 11$), which is illustrated by respondents who stated that *"I think they must have felt pain. Hopefully they were quick deaths",* and *"It was obviously hurt by what I did, and it did not come near me for a while".*

The second theme identified within Theme 4 was *Fear* ($n = 12$). This subtheme is illustrated by the following extracts:

"He felt scared and probably shocked as this wasn't something he had experienced before"
"Probably scared on reflection, I am aware guinea pigs cannot live as/are not solitary animals, it was however only for little over half an hour"
"My dog was probably scared because he didn't know he'd done a bad thing when I shouted and shoved him"

The third subtheme within Theme 4 is *Regret* ($n = 9$). In comparison to *Regret* from Theme 3 (*Emotional Reaction*), this subtheme depicts whether the *animal* feel responsible for negative outcomes for themselves, rather than the perpetrator. A number of respondents talked about the animal victims feeling sorry or regretful for the behaviours which caused the abuse to be

committed against them. One respondent stated that the animal may have felt *"scared, frightened and sorry"*. Other respondents similarly described the animal's feelings following the incident as *"Sad, regretful and sorry"*, and *"Regretful, remorse"*.

The final subtheme for *Animal Empathy* was *Confusion* ($n = 8$). It could be argued that perpetrators who suggest that the animal felt confused as a result of their actions are either minimising the consequences of their abuse, or failing to acknowledge or understand the physical or emotional consequences of their abusive behaviour:

"*Sad and confused. (…) I did not think about this afterwards because I did not hurt her*"

"*I'd hope that we stunned it quickly enough for it to feel very little in the way of pain beyond the initial blow, but I imagine it might've felt scared or at least confused at being out of the water*"

"Well it would have felt nothing probably. Just a bit shocked".

The final theme (*Animal Empathy*) demonstrates the perpetrators understanding, or lack of understanding, of the emotional impact their abusive behaviour had on their animal victim. Overall, respondents demonstrate some awareness of the negative impact of their behaviours. For example, they acknowledge that their actions held negative implications (*i.e., pain and fear*). However, some respondents clearly overlook the immediate harm caused by their behaviour and instead suggest the animal is somehow responsible for their actions (i.e., *regret*), or has limited understanding of the behaviour perpetrated against them (i.e., *confusion*). Both of these outcomes could be indicative of moral disengagement mechanisms, allowing the perpetrators to justify their abusive behaviour.

Discussion

This study utilised thematic analysis to explore animal abuse perpetrators experiences of animal abuse, including how the animal was abused and the associated emotion-related experiences, motivations for animal abuse, and the impact of the abuse. Four themes were

identified within the data: *Types of Animal Abuse; Lack of Emotional Control; Emotional Reaction; Animal Empathy.*

Theme 1 (*Types of Animal Abuse*) demonstrated the distinct ways in which animal abuse is perpetrated, which is consistent with existing scales and measurements of animal abuse (Henry, 2004; Herzog, Betchart, & Pittman, 1991). Subthemes identified included: *Physical Abuse, Verbal Abuse,* and *Psychological/ Emotional Abuse.* The findings from this study tell us more about the types of abuse that may go undetected. These results also illustrate the heterogeneity of animal abuse and the necessity to further examine each type of abuse more rigorously to better understand the motivations directly linked to each type.

Theme 2 (*Lack of Emotional Control*) is in keeping with previous research which has examined motivations for animal abuse and identified emotion-regulatory factors which facilitate this behaviour. Based on the General Aggression Model (GAM) discussed in Chapter 1, subthemes 1 (*Frustration*) and 2 (*Anger*) are both responses to situational factors that play an important role in an individual's decision to aggress (Howells, 2004). Frustration and aggression have been shown to increase the likelihood of aggressive behaviour (Anderson & Bushman, 2002). Based on the theory posited in Chapter 1, this type of animal abuse could be reflective of the mis-regulation of emotions. For example, the perpetrator suppresses their initial desire to retaliate but behavioural avoidance only prolongs those emotions, thereby increasing their influence and, in turn, the perpetrator's preparedness to aggress. Alternatively, this could also be explained by the under-regulation of emotions. In this instance, the perpetrator is unable to avoid or suppress their emotion responses, and thus fails to inhibit impulsive reactions towards the provocateur (i.e., the animal).

Subtheme 3 (*Fear*) depicts animal abuse as a direct result of fear for the safety of their own animal or through fear of being threatened by an animal. Some perpetrators reported that they carried out the abuse due to fearing their own, or another's safety due to perceived

threatening behaviour from the animal. Previous research has found that individuals who are motivated by retaliating against an animal are more likely to have beaten or kicked an animal compared to those who have not beaten or kicked an animal (Newberry, 2017). The respondents from this study also scored higher on urgency than those who did not report this motivation. Thus, this type of motivation would fall more closely in line with direct, explosive animal abuse, which is demonstrative of the under-regulation of emotions which would otherwise prevent such a 'knee-jerk' reaction.

Theme 3 (*Emotional Reaction*) demonstrated that many animal abuse perpetrators have a negative emotional reaction to their own abusive behaviour towards animals. Subthemes 1 (*Sadness*), 2 (*Guilt/Shame*), and 3 (*Regret*), all evidence a negative emotional impact from aggressing. It is possible that this study found an overwhelmingly negative reaction to animal abuse perpetration due to limitations in the study design. Specifically, this study relied on self-reported incidents of animal abuse, therefore respondents may have been providing socially desirable responses to questions about their emotional reactions to appear less deviant. Subtheme 4 (*Relief*), however, was a surprising finding. Respondents reported feelings of relief following their abusive behaviour towards an animal. Although, in these instances the behaviour was not typically deviant, is was carried out in self-defence, or in defence of their companion animal.

Theme 4 (*Animal Empathy*) encompassed two subthemes which demonstrate that some understand the consequences of their own abuse, and two subthemes which demonstrate a lack of understanding of the consequences. Specifically, subtheme 1 (*Pain*) and subtheme 2 (*Fear*) are demonstrative of perpetrators having some form of empathy towards animals and understanding the negative consequences of their behaviour. These findings could be explained by previously mentioned socially desirable responding. However, it is also important to note that a significant proportion of the sample who reported that that

animal experienced *pain* or *fear* also reported feeling *regret* or *shame* following their perpetration of abuse. Thus, it is possible that these respondents reported their genuine emotions following an emotion fuelled incident that they anticipate not to repeat as a result of this. Further research to gauge the frequency of animal abuse and the consequential emotional responses of the perpetrator would be merited.

Subtheme 3 (*Regret*) is indicative of perpetrators believing that the animal-victim regrets their behaviour which ultimately caused the abuse. Arguably, these respondents are suggesting that the animal is responsible for the resulting abusive behaviour, which served its purpose (i.e., to discipline), and that the animal is regretful. Subtheme 4 (*Confusion*) also suggests that respondents are dismissive of the immediate harm caused by their behaviour, and instead minimise the impact of their actions by suggesting that the animal was confused by their actions, as opposed to hurt. Research has shown that attributing morally relevant mental capacities to animals (e.g., pain, pleasure, fear, happiness) explains moral inclusiveness which, in turn, explains positive attitudes toward animal welfare (Bastain, Costello, Loughnan, & Hodson, 2012). Arguably, respondents who believe their abusive behaviour merely confused the animal victims' struggle to attribute mental capacities to animals. The subsequent lack of animal welfare concern is then demonstrated by their abusive behaviour towards animals. Thus, both these subthemes are indicative of limited empathy towards animals.

A number of limitations with the current study must also be acknowledged. Firstly, of the original respondents who participated in this study, only 49 were included in the final analyses due to self-reporting incidents of animal abuse. It is possible that different themes may have emerged had the sample been larger or taken from a different cohort. Furthermore, the method of providing typed responses to questions may have caused finer details to be omitted when respondents provide their responses. The researcher attempted to account for

this by providing a minimum word count for each typed response, and by asking respondents to provide detailed descriptions, however this is still noteworthy. Given that this method bypasses the problems associated with interviewing perpetrators, such as feelings of shame and embarrassment, or socially desirable responding (Grimm, 2010), it was deemed as appropriate. Thirdly, the responses analysed represent a one-sided account of the animal abuse incident, so it is possible that perpetrators may have understated claims due to fears of criminalisation. The procedure of this study provided respondents with complete anonymity in an attempt to best alleviate this suspicion. Therefore, further research would benefit from using implicit measures assessing behavioural proclivity in order to substantiate some of these findings, and further explore the more proximal factors that potentially trigger this type of behaviour.

CHAPTER FOUR

The Development and Validation of the "Whack-a-Pet" (WaP) Behavioural Measure

Introduction

The first chapter of this thesis proposed a preliminary conceptualisation of how the two maladaptive styles of emotion regulation (i.e., under-regulation/ mis-regulation) may operate in the facilitation of animal abuse. The second chapter presented two studies which explored the unique facilitating factors for animal abuse, specifically those relating to maladaptive regulation of emotions. The third chapter explored this further, utilising a qualitative method to further explore the offence process, and the perpetrators' associated emotional responses and experiences. However, up to now, animal abuse behaviour was assessed using self-report measure, which could elicit socially desirable responding. To validate some of the previous findings and further understand the mechanisms underlying this behaviour, the aim of this chapter is to present the development and validation of a new implicit, behavioural proxy of animal abuse.

To date, research into animal abuse has often been conducted using self-report measures, such as questionnaires (e.g., AAS; Herzog et al., 1991, and, ATTAS; Henry 2004) and proclivity scales (e.g., AAPS; Alleyne et al., 2015). However, self-report methodologies may be limited for a number of reasons: (1) respondents can only report what they *believe* to be true about themselves, (2) they can only report aspects that can be introspectively identified, and (3) they are subject to socially desirable responding, especially when referring to potentially deviant behaviours, such as animal abuse (see Singer, von Thurn, & Miller, 1995). We therefore propose a measure that instead assesses impulsive aspects that cannot be

introspectively identified easily, and whose measurement is not strongly affected by social desirability and self-presentational concerns.

The selection hypothesis posits that individuals who have a pre-existing disposition to be aggressive may have a heightened interest in for example, violent games (e.g., Elson & Ferguson, 2014). In the context where an individual might make different choices in a game, those with a history of anger and aggression may be more likely to enact violent solutions to the dilemmas posed by the game (Hay et al., 2018). Therefore, aggressive choices made in the context of a game could be considered as predictive of anti-social behaviours in the real world. Based on existing theory, we designed a *Whack-a-Mole* style game, whereby participants could choose whether to aggress towards animals or not. In doing so, participants with a behavioural tendency to aggress towards animals could be identified within a general population sample. To measure participants behavioural tendencies to aggress towards animals, this study design will explore reaction time (i.e., time taken to click on the targets), total number of HITs (i.e., total number of successful clicks on the targets) and the total number of attempts (total number of successful and unsuccessful clicks on the targets).

Accurate assessment of change in affect among the sample is also important due to the potential emotional impact of the game. Unwanted exposure to disturbing themes has been shown to have a negative impact on emotions (Gowler & Iacovides, 2019). Therefore, aggressing towards animals may elicit a similar emotional experience in those who do not typically engage in or endorse aggressive behaviour. Similarly, individuals who hold abuse supportive beliefs or attitudes may experience the opposite effect, whereby their positive affect increases. Previous research has identified a relationship between deficits in empathy, negative animal-related attitudes and animal abuse (see Chapter 1). Based on this, we would expect that aggressive responding would be related to deficits in animal-related empathy and attitudes consistent with animal abuse.

The current study had two main aims:

(1) to develop the Whack-a-Pet game (WaP) that can provide a measure for participants' interest in animal abuse;

(2) to validate the WaP game with existing measures that we would expect to be correlates of animal abuse behaviour.

Study 4

Method

Participants

Ninety-five students at the University of Kent signed up to complete a lab-based study on 'Human interactions with animals'. Twenty-three males (24.2%), and 72 females (75.8%), with ages ranging from 18 to 42 years old ($M = 21.85$, $SD = 4.57$) were retained for the data analysis. Ethnicity was predominantly White/Caucasian (51.6%), East Asian (13.7%), and Asian (12.6%). All participants of this study were residents from the UK and were paid £5.00 in compensation.

Design and Measures

The positive and negative affect schedule (PANAS). To measure change in feelings and emotions, the PANAS (Watson et al., 1988) was utilised at two time points; before and after completion of the WaP behavioural task devised for this study. This 20-item scale assesses positive emotions and negative emotions separately with 10-items for each type of emotion. Participants read each emotion and indicated how much they felt each emotion at that moment in time, using a 5-point scale ranging from 1 (*Very slightly or not at all*) to 5 (*Extremely*). Emotions measuring positive affect included: interested, excited and inspired; Whereas emotions measuring negative affect included: upset, scared, and ashamed. Mood change scores for positive and negative affect were calculated separately as the difference

between scores at the two time points. Positive scores reflect an increase on the measure, and negative scores reflect a decrease. Thus, a positive change score for positive affect would suggest participants were feeling increasingly positive after the game, and a positive change score for negative affect would suggest participants felt increasingly negative after the game, and vice versa. The internal consistency of the positive affect scale has previously been reported at .88, and for the negative affect scale at .87 (von Humboldt, Monteiro, & Leal, 2017). In the current study, internal validity for the pre- and post-WaP affect scales were good at .89 to .90 for positive affect and .87 to .88 for negative affect.

Animal abuse proclivity scale (AAPS). The AAPS is a self-report measure developed by Alleyne et al. (2015). Participants' likelihood to engage in animal abuse is measured through six hypothetical scenarios which participants were instructed to read and imagine themselves as the protagonist, before responding to four items. There were three indirect scenarios, where the target of aggression was *not* the perceived provocateur, for example:

> "*You come home from work to find your partner flirting and touching the estate agent that has come to value your house. You remain calm whilst the estate agent is there, however, when they leave, you confront your partner about the flirting. Your partner insists there was no flirting and that you are being paranoid. This angers you and you start to knock ornaments over and throw things against the wall. To show how annoyed you are, you pick up your partner's pet cat and throw it against the wall in order to scare your partner.*"

There were three direct scenarios, where the target of aggression was the perceived provocateur, for example:

> "*You have just come home from a bad day at work and have a headache. Your pet dog, Rascal, has been left alone all day while you've been at work. You open the door*

to the living room to find that Rascal, who is normally kept in the kitchen, has

managed to open the door into the living room and has chewed a pair of your shoes

and urinated on the floor. You pick up one of the chewed shoes and start to hit Rascal

on the head in annoyance until the dog is knocked out."

Responses were recorded on a 5-point scale, ranging from 1 (*not at all*), to 5 (*very*

strongly), for items including 'In this situation, how thrilled would you be?', 'How powerful

would you have felt?', 'Could you see yourself doing the same?', and 'Imagine that someone

has seen you in this situation. How much would you have enjoyed watching their reaction?'.

Item responses on the subscales (i.e., thrilled, powerful, behavioural propensity and

enjoyment of others' reaction) were summed for subscale scores, and all item responses were

summed for an overall proclivity score. The internal consistency of the original scale has

been found to be .93 (Alleyne et al., 2015). In the current study, the overall score (α = .87)

and subscales thrilled (α = .93, powerful (α = .91), behavioural propensity (α = .71), and

enjoyment of others' reaction (α = .71) were reliable.

Aggression towards animals scale (ATAS). To assess aggression towards non-

human animals in adulthood, this study utilised the ATAS (Gupta & Beach, 2001). This 19-

item scale was amended so that only *physical* items were included, resulting in 14-items in

the final measure. For scoring, each item was recoded using the midpoint for each response,

therefore scores ranged from 0 to 25 for each item, with higher scores indicating more

frequent aggression. In the current study, internal reliability was acceptable at .64. Typically,

α = .70 and above is the accepted value of Cronbach's alpha; however, values above .60 are

also considered acceptable (Griethuijsen et al., 2015; Hinton, McMurray, Brownlow, 2014;

Wim et al., 2018).

Attitudes toward the treatment of animals scale (ATTAS). To assess participants'

sensitivity toward animal mistreatment, the ATTAS (Henry, 2004) was utilised. This 26-item

scale includes items such as 'I get annoyed by dogs that howl and bark when they are left alone', and 'People who cuddle and kiss their pets in public annoy me'. Participants were asked to indicate to what extent they agree or disagree with each of the thoughts and/or feelings described, using a 7-point Likert scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). Thus, higher scores reflect relatively lesser discomfort with the type of treatment specified. The ATTAS has previously demonstrated very good internal consistency ($\alpha = .93$). In the current sample, internal consistency was also good ($\alpha = .94$).

Emotion regulation questionnaire (ERQ). To assess individual emotion regulation strategies, this study utilised the ERQ (Gross & John, 2003). Subscale scores were calculated by summing items with higher scores indicative of greater engagement in strategy. In the current study, internal consistency for subscales cognitive suppression ($\alpha = .71$) and expressive suppression ($\alpha = .74$) was acceptable (See Chapter 2 for a more detailed discussion of this scale).

Emotional toughness toward animals' scale (ETAS). The ETAS (Gupta & Beach, 2002) is a 10-item self-report questionnaire developed to assess the personality feature of callousness as it pertains to animals. In the current sample, internal consistency was acceptable at .79 (See Chapter 2 for a more detailed discussion of this scale).

Animal empathy scale (AES). To assess empathy towards non-human animals, this study utilised the AES (Paul, 2000). Higher scores indicate a more empathetic response. In the current study, internal validity was good at .86 (See Chapter 2 for a more detailed discussion of this scale).

Whack-a-Pet (WaP). The task required participants to 'HIT' target stimuli which appeared through an 8 by 2 grid. Participants either 'HIT', 'MISS', or do not attempt the target stimuli, using an animated mallet controlled by the computer mouse. The game had three conditions: pets (i.e., represented by images of cats and dogs) with blood animation and

sound on 'HIT'; pets with no blood animation or sound on 'HIT'; and a control condition (i.e., represented by a beach ball with *pop* animation on 'HIT'; see Figure 6.). The task was counterbalanced so that there were equal numbers of participants in each condition. Participants were instructed to 'hit the objects using the mouse to play' and to 'press space to start'. The task then lasts for 30 seconds and is composed of 50 trials (i.e., appearance of stimuli). On completion, the software produces an excel spreadsheet for each participant listing the trial number, total HITs, total MISSes and the reaction time for each of the HITS/MISSes. For the purpose of analyses, variables representing the total number of HITs (*total HITs*) and total number of HITs and MISSes (*Number of Clicks*) were created, as well as a standardised reaction time variable (*RT*). For each participant, this was created by dividing their mean overall reaction time, by their overall standard deviation of the reaction time. This was carried out following the removal of all outliers that were three times the interquartile range beyond the 25th and 75th percentiles.
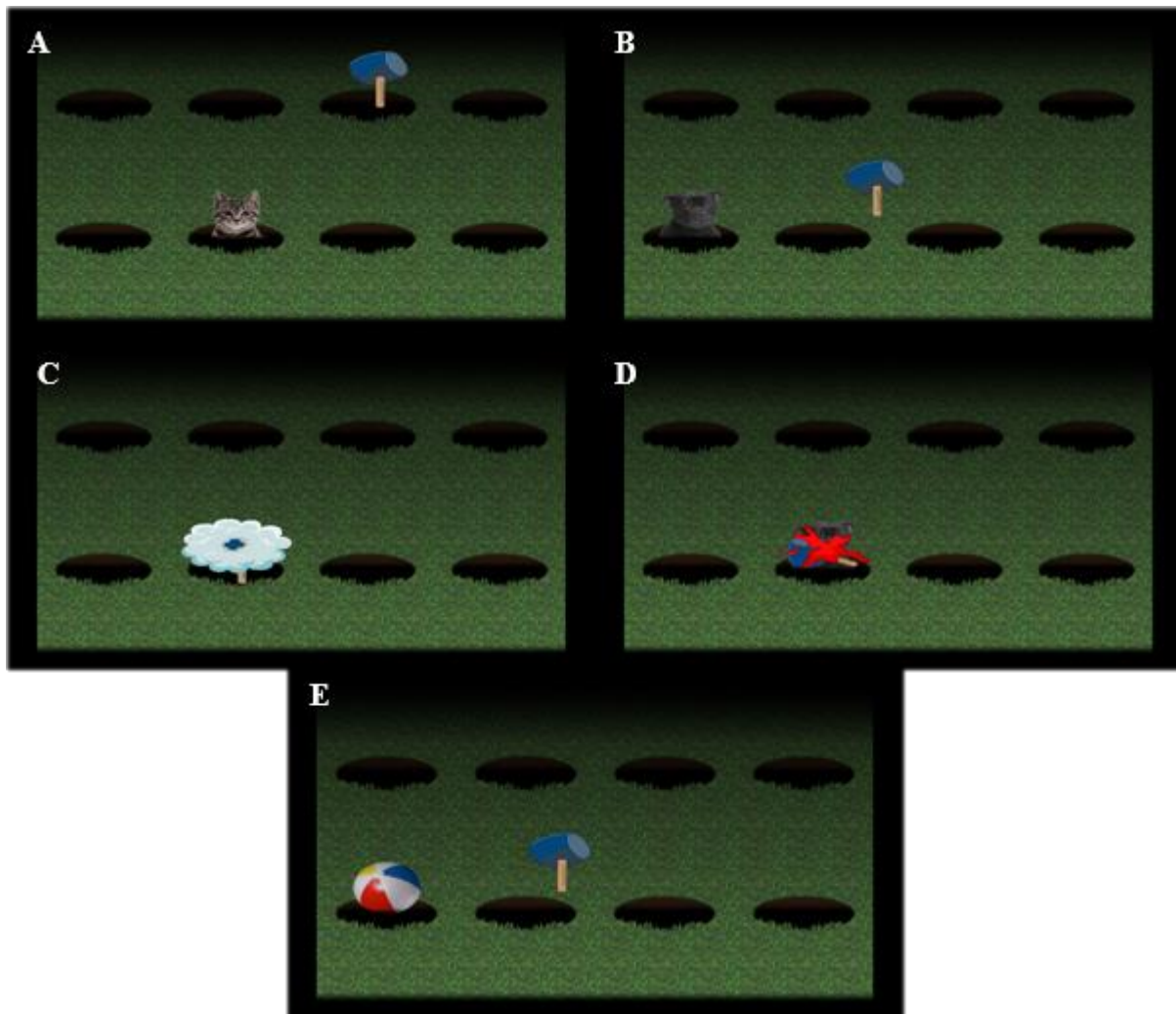
Figure 6: Example of task/condition stimuli: A) Pet stimuli; B) Pet stimuli; C) 'Pop' animation; D) Blood animation; E) Neutral stimuli.

Procedure

Following ethical approval from the University's Ethics Committee, participants signed up to a 30-minute time-slot in a lab based at a University of Kent. Participants were asked to read the information sheet explaining the aims of the study, and to provide their consent to take part. After indicating their consent, they completed some basic demographic measures. Participants then completed the PANAS, WaP behavioural task, and the PANAS again. Participants then took part in a filler style task which involved them counting the number of occurrences a particular letter appeared in a random excerpt. This was followed

by the self-report measures presented in random order to control for order effects (i.e., animal empathy, emotional toughness towards animals, animal abuse proclivity, attitudes towards the treatment of animals, emotion regulation and aggression towards animals). The WaP task was programmed into PsychoPy and the self-report measures were programmed into Qualtrics; both were presented on a computer with a separate mouse and keyboard by which participants made their responses. At the end of the experiment, participants were fully debriefed.

Results

All analyses of study data were conducted through SPSS Statistics Version 24, using a $p < .05$ level of significance.

Correlations between Groups, Demographics and Related Constructs

A Pearson product-moment correlation was run to determine the relationships between the study variables (see Table 5.). In the pets with blood condition of the WaP, there were no significant correlations between the WaP measures (i.e., positive/negative affect change, number of clicks, reaction time, and total HITs) and the psychological measures (i.e., AES, ETAS, AAPS, ERS, ATTAS, and the ATAS).

In the pets only condition of the WaP, positive affect change was negatively correlated with aggression towards animals ($r = -.54$, $n = 28$, $p =.003$). Participants who experienced a reduction in positive affect were less likely to aggress towards animals. Negative affect change was positively correlated with animal empathy ($r = .43$, $n = 28$, $p =.021$) and attitudes towards the treatment of animals ($r = .43$, $n = 28$, $p =.021$). Participants who experienced an increase in negative affect were more empathetic towards animals and help more positive attitudes towards them. Number of clicks was negatively correlated with animal empathy ($r = -.439$, $n = 28$, $p =.020$). Participants who made more attempts to hit the animal targets were less empathetic towards animals. In the pets only condition, reaction time

was positively correlated with animal abuse proclivity ($r = .42$, $n = 28$, $p = .027$). Participants who were slower to hit the animal targets were more likely to engage in animal abuse.

In the control condition of the WaP, negative affect change was positively correlated with aggression towards animals ($r = .47$, $n = 32$, $p = .006$). Participants who experienced an increase in negative affect were more likely to aggress towards animals. Total HITs was negatively correlated with aggression towards animals ($r = -.40$, $n = 32$, $p = .022$). Participants who were more accurate at hitting the neutral targets were less likely to aggress towards animals. Cohen (1988) has made widely accepted suggestions regarding what constitutes a small ($r = .10$), medium ($r = .30$) and large ($r = .50$) effect size. Therefore, these significant correlations demonstrate a medium to large effect size. Participants' age and gender (male = 1, females = 2) correlated with the study variables in each condition and were subsequently controlled for in following analyses.

Table 5. *Bivariate correlations between the related variables separated by the three WaP conditions.*

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Pets with Blood (*n* =35)	1. Age	-													
	2. Gender	-.08	-												
	3. Total Hits	-.05	-.05	-											
	4. Number of Clicks	-.11	.12	.86**	-										
	5. Reaction Time	.34*	-.42*	-.26	-.39*	-									
	6. Positive Change	.02	-.04	.45**	.58*	.03	-								
	7. Negative Change	.04	-.28	-.42*	-.41*	.03	-.43*	-							
	8. AES	-.32	.05	-.06	-.08	-.11	-.16	.21	-						
	9. ETAS	.29	-.10	.13	.11	-.04	.12	-.02	-.67**	-					
	10. AAPS	.14	-.05	.12	.30	-.13	.22	.20	-.09	.33	-				
	11. ATTAS	-.27	.06	-.16	-.20	-.01	-.19	.23	.67**	-.80**	-.31	-			
	12. Reappraisal	-.22	.10	-.21	-.08	-.13	.01	.15	.20	-.16	.06	.16	-		
	13. Suppression	-.01	-.16	-.10	-.04	.05	.02	-.04	-.45**	.27	.07	-.36*	-.08	-	
	14. ATAS	.08	-.41*	.04	.07	.14	-.00	.02	.20	.08	-.11	-.18	-.09	-.02	-
Pets (*n* =28)	1. Age	-													
	2. Gender	-.02	-												
	3. Total Hits	.22	-.30	-											
	4. Number of Clicks	.08	-.23	.56**	-										
	5. Reaction Time	-.08	.24	.06	-.04	-									
	6. Positive Change	-.41*	-.16	.41*	.22	.06	-								
	7. Negative Change	.01	.20	-.24	-.15	.16	-.34	-							
	8. AES	.07	.47*	-.35	-.44*	-.04	-.22	.43*	-						
	9. ETAS	-.12	-.05	.20	.25	.23	.28	-.27	-.77**	-					
	10. AAPS	-.02	.07	.01	-.16	.42*	-.11	.22	-.29	.51**	-				
	11. ATTAS	.15	.28	-.22	-.36	-.00	-.19	.43*	.81**	-.66**	-.18	-			
	12. Reappraisal	.00	.19	-.09	-.30	.17	.11	.23	-.02	.14	.10	.14	-		
	13. Suppression	-.12	-.20	.06	-.06	.20	.02	-.11	-.17	.14	.16	.01	-.14	-	
	14. ATAS	.25	.13	-.19	.17	-.16	-.54**	-.07	-.02	.09	.05	-.05	-.18	-.12	-
Control (*n* =32)	1. Age	-													
	2. Gender	.12	-												
	3. Total Hits	-.14	.09	-											
	4. Number of Clicks	-.24	.03	.23	-										
	5. Reaction Time	.20	.23	.25	-.39*	-									
	6. Positive Change	-.15	.00	-.11	.11	.05	-								
	7. Negative Change	.23	-.25	-.57**	-.23	-.12	.25	-							
	8. AES	-.21	.15	.20	.00	.26	-.07	-.12	-						
	9. ETAS	.18	-.27	-.04	-.00	-.11	.23	.14	-.62**	-					
	10. AAPS	.28	-.06	-.12	.04	-.22	.02	.15	-.13	.03	-				
	11. ATTAS	-.10	.24	-.08	-.07	.18	.04	-.16	.60**	-.45**	-.18	-			
	12. Reappraisal	.19	.25	.10	-.20	.25	-.23	-.12	.13	-.37*	.12	.15	-		
	13. Suppression	.05	-.34	.16	-.15	-.06	-.19	.10	-.33	.16	.22	-.52**	.07	-	
	14. ATAS	.16	-.36*	-.40*	-.22	-.06	-.00	.47**	-.27	.02	.26	-.16	.08	.16	-

Note: AES = animal empathy, ETAS = emotional toughness towards animals, AAPS = animal abuse proclivity, ATTAS = attitudes towards the treatment of animals, ATAS = aggression towards animals. * $p < .05$ ** $p < .001$

Multivariate Analyses

Next, we conducted a MANCOVA to see whether the dependant variables (i.e., self/emotion-regulation and animal-oriented empathy factors) varied as a function of the WaP condition (i.e., pets with blood, pets, or control groups) within the same model, with age and gender as covariates. We found an overall significant model (F (18, 162) = 2.40, p = .002; Λ = 0.624, η_p^2 = .21) representing differences between the conditions. Based on this, one-way analysis of variance and post hoc tests were used to determine in which groups and at which levels of the related constructs there were differences (see Table 6. for means, standard deviations, F statistics, p values, and effect sizes).

When examining the univariate analyses within the model we found significant effects for *total HITs*, *number of clicks* and *negative change*. Participants in the pets and pets with blood conditions of the WaP had higher n*egative change* scores than participants in the control condition. Participants who were exposed to animal targets (with and without blood), compared to neutral targets, felt more negative emotions following the task.

Participants in the pets with blood condition also reported less *total HITs* than participants in both the pets and control conditions. Participants were less successful at hitting animal targets with blood, compared to animal targets without blood and neutral stimuli.

Finally, participants in the pets with blood condition reported a lower *number of clicks* than participants in the control condition. Participants made less attempts to hit animal targets with blood, compared to neutral targets.

A post hoc power analysis (Faul et al., 2009) for achieved power of the overall model was conducted. The achieved Pillai V of 0.411, with three groups and nine response variables equals a medium effect size (f^2) of 0.259 (Cohen, 1988). The alpha level of 0.05 and n = 95 suggest a power of .99 which is sufficient.

Table 6. *Results of the three conditions' one-way analysis of variance and post hoc tests.*

Measures	Pets with blood (n = 35)			Pets only (n = 28)			Control (n = 32)			F	p	η_p^2
	M	SD	95% CI	M	SD	95% CI	M	SD	95% CI			
Reaction time (*Standardised*)	6.48	2.83	5.81, 7.15	6.83	1.43	6.09, 7.57	6.41	1.18	5.72, 7.10	0.39	.681	.009
Total HITS	31.01$_a$	11.90	28.16, 33.86	38.46$_b$	5.51	35.32, 41.60	40.59$_b$	4.65	37.67, 43.51	11.90	.000**	.211
Number of Clicks (*HIT's & MISSes*)	44.88$_a$	13.79	41.48, 48.29	50.44$_b$	4.74	46.68, 54.19	54.15$_b$	8.04	50.66, 57.64	7.21	.001*	.140
AES	115.72	17.01	110.15, 121.28	112.03	18.44	105.90, 118.17	117.52	14.92	111.82, 123.23	0.87	.423	.019
ETAS	18.54	7.68	16.00, 21.09	20.51	8.38	17.71, 23.32	17.88	6.38	15.28, 20.49	n/a	n/a	n/a
AAPS	32.32	9.38	28.80, 35.84	34.80	10.41	30.91, 38.69	33.11	11.05	29.51, 36.72	0.45	.641	.010
ATTAS	99.07	17.00	93.17, 104.97	96.16	20.50	89.65, 102.66	103.79	14.74	97.75, 109.84	1.51	.226	.033
Reappraisal	30.58	4.44	28.63, 32.53	30.51	5.03	28.436 32.67	30.65	7.31	28.65, 32.65	n/a	n/a	n/a
Suppression	15.19	4.42	13.49, 16.90	15.17	5.47	13.29, 17.07	15.83	5.29	14.09, 17.58	n/a	n/a	n/a
Animal Abuse	15.71	2.52	14.90, 16.51	15.71	2.84	14.82, 16.60	14.80	1.71	13.93, 15.59	1.70	.188	.037
Positive Affect Change	-4.51	5.03	-6.39, -2.63	-3.07	5.12	-5.14, -1.00	-2.18	6.14	-4.10, -0.26	1.51	.226	.033
Negative Affect Change	4.08$_a$	5.55	2.49, 5.68	3.06$_a$	5.45	1.30, 4.82	-0.26$_b$	1.98	-1.90, 1.37	7.70	.001*	.147

Note: Means that do not share subscripts differ at $p < .05$; n/a, not assessed due to not being correlates of the WaP measures'. AES = animal empathy, ETAS = emotional toughness towards animals, AAPS = animal abuse proclivity, ATTAS = attitudes towards the treatment of animals. * $p < .05$ ** $p < .001$

Discussion

The purpose of the current research was to develop and validate the Whack-a-Pet (WaP) game; a newly devised behavioural tool designed to implicitly measure animal abuse. The WaP depicts an interactive online game, whereby participants could hit images of cats/dogs or a control stimulus with an animated mallet as they appeared sporadically on a computer screen. Correlational analyses demonstrated evidence for the new measures' convergent validity.

The construct validity of the WaP was established by examining the concurrent correlations of the WaP outcomes measures (i.e., positive/negative affect change, number of clicks, reaction time, and total HITS) with an array of theoretically meaningful constructs. In the pets only condition, individuals who reported reduced positive affect were less likely to aggress towards animals, and those who reported increased negative affect were more empathetic and held more positive attitudes towards animals. Such findings demonstrate that the WaP had a greater negative impact (i.e., reduces positive affect and increases negative affect) on individuals who are more favourable towards animals. These findings substantiate previous research which has found that animal-related empathy deficits and animal-related aggression are positively associated with having attitudes and beliefs that facilitate animal abuse (Joliffe & Farrington, 2004; Henderson, Hensley, & Tallichet, 2011). As further evidence of construct validity, participants in the pets only condition who made more attempts to hit the animals presented with reduced animal-directed empathy. Therefore, we conclude that more attempts to hit the animal targets, coupled with empathy deficits and a proclivity to engage in animal abuse, is arguably reflective of a tendency to, or an interest in aggressing towards animals.

An unexpected finding was that in the pets only condition of the WaP, participants with greater reaction times (i.e., slower to aggress towards animals) scored higher on the

AAPS. This suggests that those who hesitated to hit the target animals were more likely to engage in animal abuse. This finding goes against existing research which argues that animal abusers are generally more aggressive (e.g., Arluke et al., 1999; Febres et al., 2014). However, it is important to recognise that the AAPS is an explicit self-report measure, whereas reaction time determined from the WaP is implicit. According to Strack and Deutch (2004), certain human behaviours are controlled by impulses that are not predictable based on questionnaires. Exposure to certain stimuli (i.e., an animal) activates automatic associations, providing the observer with category-based information along with automatic evaluations (Fazio, 2001). When using explicit measures, this process which governs our behaviour is not available to the observer. Instead, the mind engages in an alternate process of operation which is more introspective when responding. Implicit measures, such as reaction-times, overcome the limitations of introspection by triggering the same cognitive structures and automatic evaluations which are more reflective of the impulsive responses they set out to measure (Fazio & Olson, 2003). Whilst both implicit and explicit measures are useful for predicting human behaviour, they are weakly correlated; thus, supporting the argument that they tap into unique constructs (Nosek, 2007; Greenwald, Poehlman, & Banaji, 2009). Specifically, impulsive behaviours and poor self-control are better represented through implicit measures (Hofmann, Friese, & Strack, 2009) Based on this, reaction time will be implemented as the outcome measure of the WaP to reflect animal abuse tendencies. Reaction times overcome the limitations of traditional self-report measures which rely on introspection for aggressive or impulsive responding. Therefore, we anticipate that this outcome measure will provide a more realistic representation of participant behaviour moving forward.

A further surprising finding was that participants in the control condition who reported increased negative affect also scored higher on aggression towards animals.

However, it should be noted that negative affect also encompasses emotions such as irritability. Therefore, it is possible that the act of repeatedly hitting a balloon (as in the control condition) further increased irritability in participants who were already predisposed to engage in aggressive behaviour. Based on the deviance generalisation hypothesis, animal abuse is just one form of many forms of antisocial behaviour that can precede or follow any other type of offending (Arluke et al., 1999). Thus, respondents who are already inclined to engage in aggressive behaviour (including animal abuse), could be further triggered by the repetitive task, and consequentially score greater on negative affect due to increased irritableness. Future research should incorporate a measure of general anti-social behaviours to provide further insight into this.

Moreover, in the control condition participants who scored higher on accuracy (i.e., total number of successful HITS) reported lower aggression towards animals. This falls more in line with what we would expect to see, given that the targets were non-animals, and the WaP would present as a simple task which should not elicit any negative emotional reaction in participants, particularity in those who are successful at the task. In the pets with blood condition, there were no significant correlations between the study variables. This could be due to participants focusing on the blood animation, as opposed to the intended animal targets. As a result of this, the pets with blood condition had the lowest number of total HITS than both the pets and control conditions, and a lower number of total clicks than the control condition. Desensitisation to video game violence may also be a reason behind the limited findings in the pets with blood condition. Researchers have found that exposure to violence in video games eventually desensitises players to that violence (Carnagey et al., 2007). Specifically, it is common for people to have an innate negative emotional response when exposed to blood and gore; such as increased heart rate, perspiration, and self-reported discomfort (Cline, Croft, & Courier, 1973; Titus, 1999). Therefore, in this instance it is

possible that the repetitive blood animations caused a desensitising physiological effect on participants in this condition.

As stated previously, animal abuse is positively correlated with aggression towards animals, negative attitudes towards animals, and empathy deficits (Joliffe & Farrington, 2004; Henderson, Hensley, & Tallichet, 2011). It was predicted, on this basis, that the WaP outcome measures (i.e., positive/negative affect change, number of clicks, and total HITs) would be positively related to these constructs. Indeed, the data partially supports these hypotheses. Significant associations were found between the WaP pets only outcome measures and aggression towards animals, animal empathy, attitudes towards animals, and animal abuse proclivity. Thus, the WaP exhibited a theoretically meaningful pattern of correlations that support the convergent validity of this measure. Looking forward, the pets only condition of the WaP will be utilised as a behavioural proxy measure for animal abuse in this thesis.

Despite these promising findings, the present study had several limitations which need to be addressed. Firstly, it is important to recognise the previously mentioned debate surrounding self-report methodology, whilst the WaP is a behavioural measure, the construct measures used for validating WaP relied on self-report methodology. Secondly, although the recruitment of university students enabled access to a large sample on which to conduct an initial validation of the WaP, it is inevitably associated with certain methodological issues. However, due to lab-based restrictions of the WaP tool, it does enable researchers to conduct studies using student samples (an accessible population) and the literature generally supports inferences made from student data to the wider public (Wiecko, 2010). Finally, although these findings highlight group differences on the WaP which warrant further exploration, caution must be taken when draw such conclusion due to the small effect sizes. A more

extensive discussion of the limitations and practical implications of this research are provided in Chapter 6.

In closing, the WaP is a new behavioural proxy measure of animal abuse, or at minimum an interest in animal abuse. The development of the WaP opens up the opportunity for a magnitude of lab-based research by which researchers can further examine the underlying mechanisms that facilitate and perpetuate animal-related offending.

CHAPTER FIVE

The Effect of Emotion Regulation on Aggression towards Animals

Introduction

The previous studies have shown that maladaptive emotion-regulation is an important distinguishing factor of animal abuse behaviour. As reported in preceding chapters, individuals who are more susceptible to animal abuse engage in less cognitive reappraisal and increased anger rumination than violent offenders, and non-offenders. Those who report engaging in animal abuse also report childhood experiences of animal abuse and animal-related empathy deficits. Study 3's qualitative analyses further supported these findings by demonstrating that perpetrators generally lack emotional control and have difficulty acknowledging the suffering they could be inflicting upon the animal victims.

In light of these findings, the exact role of emotion regulation needs to be further examined. Specifically, how does emotion regulation interact with anger rumination to facilitate animal abusive behaviour. It is important to establish whether a causal relationship exists between these variables. As a basis for testing this, the present chapter reports two experimental studies which explore the underlying causal relationships between anger rumination, maladaptive emotion regulation and animal abuse. Specifically, Study 5 will examine whether we can experimentally manipulate emotion regulation and gauge its impact on the causal pathway between anger rumination and animal abuse (as measured by a behavioural proxy). Then, Study 6 will explore how this relationship influences the two forms of animal abuse proclivity (direct and indirect; as described in Chapter 1).

Study 5

Based on the ability of anger rumination to increase and maintain negative affect and aggressive priming in general, we first hypothesised that trait anger rumination would be positively correlated with animal abuse; specifically, individuals who tend to engage in anger rumination are expected to be more aggressive towards animals. In exploring the causal pathway of these constructs, it is highly plausible to propose, based on findings from Studies 1 and 2, that anger rumination is an antecedent to animal abuse perpetration. Previous research has shown that anger rumination about an experimentally induced provocation increases the likelihood of participants exhibiting displaced aggression (Bushman, Bonacci, Pedersen, Vasquez, & Miller, 2005). Thus, we employed a quasi-experimental design to examine the moderating effects of emotion-regulation strategies on the link between anger rumination and aggression towards animals. It was our second hypothesis that this would be the case. Given that the ruminative effect applies to both direct forms of aggression (the provocateur is the target) and displaced aggression (Bushman et al., 2005), we expect that when we induce negative affect in a high trait ruminator, they will be more aggressive towards virtual animals when they employ maladaptive emotion regulation strategies (i.e., suppression). Alternatively, we would also expect that if we prompt an individual to employ an adaptive emotion regulation strategy (i.e., cognitive reappraisal), they will be less aggressive towards virtual animals. For the control condition, we would expect that ruminators will be aggressive towards animals, however, not as aggressive as suppressors, but more so than reappraisers.

Method

Participants

One-hundred and twenty students from the University of Kent signed up to complete this experiment, and were awarded course credits in return for their participation. Participants comprised of 33 males (27.5%) and 87 females (72.5%), with ages ranging from 18 to 32

years old ($M = 20.32$, $SD = 2.28$). Participants identified as White/Caucasian (61.7%), Asian (10.0%), Black (8.3%), East Asian (6.7%), Latino (1.7%) and Other (11.7%).

Design and Measures

Anger Rumination Scale (ARS). To assess participants' tendencies to focus their attention on angry moods or anger-evoking experiences, this study utilised the ARS (Sukhodolsky, Golub, & Cromwell, 2001). In the current study, internal validity was good at .92 (see Chapter 2 for further details).

Trait Emotional Intelligence Questionnaire Short Form (TEIQue-SF). Trait Emotional Intelligence Questionnaire Short Form (TEIQue-SF). To assess emotional intelligence, this study utilised the TEIQue-SF, adapted from the TEIQue full form (Petrides, 2009). This 30-item self-report measure assesses four factors, including: well-being (e.g., "I feel that I have a number of good qualities"); self-control (e.g., "I usually find it difficult to regulate my emotions"); emotionality (e.g., "Expressing my emotions with words is not a problem for me"); and sociability (e.g., "I'm usually able to influence the way other people fee"). The four factors also combine to provide a global TEI score. Items are scored on a seven-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Higher scores relate to higher TEI. The TEIQue-SF has previously demonstrated good internal reliability ($\alpha = .86$; Petrides & Furnham, 2006). In the current study, internal validity was good at .89.

Emotion Regulation Instructions (adapted from Richards & Gross, 2000). Three experimental conditions were established: control, reappraisal, and suppression. In the control condition, participants were given no specific instructions other than to watch the videos carefully. In the reappraisal condition, participants were instructed as follows:

"While watching the videos, take a detached, objective perspective. Try to behave like a film director whose task is to assess the performance of each actor. Keep in mind

that what you see is purely fictional, it isn't real. You're only a film director and you

have to take emotional distance in order to see all the technical details of the scene

and actors' performances. In other words, try to think about the video objectively and

analytically rather than as personally".

In the suppression condition, participants were given the following instructions:

"While watching the videos try to refrain from showing any feelings you might

experience, so that a person looking at you would be clueless regarding your emotions

or the type of video you are watching. It is very important not to let your emotions

show on your face, in gestures or body movements. Try to keep a neutral expression

the whole time".

Film Stimulus. To elicit experiences of the desired emotion, *anger*, participants were

shown two brief film clips (see Appendix I. for synopses of the stories and links). These film

clips were chosen based on previous findings to ensure that most participants would

experience the desired emotional response tendencies (Hewig et al., 2005).

Whack-a-Pet (WaP). The pets only condition of the WaP will be utilised as a

behavioural proxy measure for animal abuse for the remainder of this thesis. For the purpose

of analyses, a standardised reaction time variable will be created (RT) by dividing each

individual mean reaction time by the individual standard deviation of reaction time. This was

carried out once all outlier three times more than the interquartile range beyond the 25th and

75th percentile were removed (see Chapter 4 for further details).

Manipulation Check (adapted from Richards & Gross, 2000). Eight items were

developed to assess the success of instructions given (e.g., "When I was getting involved with

the video, I tried to see things through another perspective"; "When I felt emotions, I tried to

not express them"). The items were rated on a five-point scale, ranging from 1 (*not at all*) to 5 (*a great deal*), and assessed the success of reappraisal and suppression instructions.

Procedure

All procedures were approved by the University's Ethics committee. All data were collected online, via the Qualtrics and PsychoPy software. The experiment had a within-subjects design. After providing their informed consent, participants were asked to complete some demographic information, followed by the ARS and TEIQue-SF. Participants were told that they would view two short film clips. Immediately before viewing the clips, they were given either control, reappraisal or suppression instructions. The sequence which the film clips were shown at was randomised, as was the order of the control, reappraisal and suppression instructions. After watching the film clips, participants completed the WaP behavioural task, followed by the manipulation check items. Finally, participants were provided with an information sheet and fully debriefed.

<div align="center">

Results

</div>

Manipulation check

The first analysis tested whether participants used the emotion regulation strategies instructed (see Table 7.). Results indicate a statistically significant main effect of regulation condition on reappraisal manipulation check questions, $F (2, 119) = 5.95$, $p = .003$, $\eta^2\rho = .092$. Contrasts suggested that the manipulation check mean scores for reappraisal instructions were significantly different between the reappraisal vs. suppression conditions ($p = .003$) and marginally different between the reappraisal vs. control conditions ($p = .061$). Specifically, the reappraisal manipulation check mean scores were highest in the reappraisal condition.

Regarding the suppression's manipulation check, results indicate a main effect of regulation condition on suppression manipulation check questions, $F (2, 119) = 16.10$, $p <$

.001, $\eta^2\rho$ = .216. Contrasts revealed significant differences between control vs. suppression conditions ($p < .001$) and reappraisal vs. suppression conditions ($p = .002$). Specifically, the suppression manipulation check mean scores were highest in the suppression condition. Overall, it appears the manipulation had the desired effect given that the suppression manipulation check mean scores were highest in the suppression condition, and the reappraisal manipulation check mean scores were highest in the reappraisal condition.

Table 7. *Means and standard deviations of the manipulation check questions (reappraisal and suppression) as a function of regulation condition.*

	Control Condition	Reappraisal Condition	Suppression Condition
Reappraisal's manipulation check	$M = 2.52$ $SD = 0.89$	$M = 2.97$ $SD = 0.90$	$M = 2.29$ $SD = 0.89$
Suppression's manipulation check	$M = 2.19$ $SD = 0.77$	$M = 2.53$ $SD = 0.73$	$M = 3.10$ $SD = 0.68$

Correlations among study variables between conditions

In the suppression condition, WaP RT was negatively correlated with anger rumination ($r = -.38$), and subscales *thoughts of revenge* ($r = -.40$) and *angry memories* ($r = -.42$). Participants with faster reaction times were more likely ruminate. In the reappraisal condition, RT was positively correlated with trait emotional intelligence ($r = .36$). Participants with faster reaction times scored lower on trait emotional intelligence. In the control condition, RT was uncorrelated with the remaining variables (see Table 8.). Gender was positively correlated with RT in all three conditions.

Table 8. *Means, standard deviations, and correlations of model variables separated by emotion regulation strategy.*

		M (SD)	1	2	3	4	5	6	7	8
Suppression (n = 41)	1. Gender	1.68 (0.47)	-							
	2. TEIQue-SF	139.37 (23.49)	.23	-						
	3. ARS	37.59 (10.87)	-.05	-.49**	-					
	4. Angry Afterthoughts	11.88 (4.21)	.12	-.39**	.93**	-				
	5. Thoughts of Revenge	6.24 (1.93)	-.27	-.40**	.76**	.67**	-			
	6. Angry Memories	10.66 (3.36)	-.09	-.53**	.90**	.74**	.61**	-		
	7. Understanding of causes	8.80 (2.82)	-.09	-.41*	.87**	.76**	.53**	.73**	-	
	8. RT	6.04 (1.36)	.40*	.29	-.38*	-.29	-.40*	-.42**	-.26	-
Reappraisal (n = 39)	1. Gender	1.77 (0.43)	-							
	2. TEIQue-SF	144.28 (20.33)	.10	-						
	3. ARS	36.85 (9.51)	-.17	-.39*	-					
	4. Angry Afterthoughts	11.21 (3.17)	-.20	-.39*	.94**	-				
	5. Thoughts of Revenge	6.08 (2.06)	-.31	-.35**	.75**	.69**	-			
	6. Angry Memories	10.51 (2.80)	-.03	-.49**	.88**	.80**	.66**	-		
	7. Understanding of causes	9.05 (3.19)	-.09	-.12	.79**	.67**	.32*	.54**	-	
	8. RT	6.44 (1.60)	.40*	.36*	.06	-.02	.09	-.05	.14	-
Control (n = 40)	1. Gender	1.73 (0.45)	-							
	2. TEIQue-SF	143.40 (19.19)	.20	-						
	3. ARS	38.50 (11.59)	-.05	-.42**	-					
	4. Angry Afterthoughts	12.40 (4.79)	.09	-.35*	.93**	-				
	5. Thoughts of Revenge	6.60 (2.79)	-.31*	-.32*	.84**	.70**	-			
	6. Angry Memories	10.78 (2.98)	-.07	-.42*	.88**	.75**	.67**	-		
	7. Understanding of causes	8.73 (2.59)	.02	-.40*	.84**	.71**	.61**	.68**	-	
	8. RT	6.48 (1.55)	.37*	.16	.06	-.20	-.06	-.14	.15	-

Note: TEIQue-SF = trait emotional intelligence, ARS = anger rumination, RT = standardised reaction time.

* *p* < .05 ** *p* < .001

Moderation analysis

Hayes' PROCESS method of moderation analysis is well suited to conducting moderation analysis with a multi-categorical moderator. Using SPSS (version 25) with Hayes' PROCESS for SPSS version 3, we specified a moderation model to test the interaction between anger rumination (X) and emotion regulation strategy (a multi-categorical moderator with three levels: suppression, reappraisal and control; W) in predicting animal abuse (Y) as inferred by WaP standardised reaction time (RT). The multi-categorical moderator, emotion regulation strategy, was indicator-coded in PROCESS with suppression as the indicator group, yielding two "dummy" variables (reappraisal vs. suppression, and control vs. suppression, the focal comparison of this analysis). Additional model constraints controlled for the association of animal abuse with gender. The anger rumination variable was mean centred prior to the analysis.

To test whether emotion regulation strategy (controlling for gender) will moderate the relationship between anger rumination and animal abuse (as inferred by RT), we conducted a moderation analysis employing Model 1. The overall model was significant, $F(6,111) = 4.72$. $p < .001$, $R^2 = .20$ (see Table 9.).

Table 9. *PROCESS model results for the moderation analysis.*

	Coefficient (*SE*)	*t*	*p*	LLCI	ULCI
			Outcome: Y (WaP Reaction Time)		
Constant	3.83 (0.54)	7.08	<.001**	2.76	4.90
Anger rumination	-0.04 (0.20)	-2.15	.034*	-0.08	-0.01
Reappraisal versus suppression	0.30 (0.31)	0.97	.335	-0.32	0.93
Control versus suppression	0.40 (0.31)	1.30	.195	-0.21	1.01
ARS x Reappraisal versus suppression	0.62 (0.03)	2.00	.048*	0.01	0.12
ARS x Control versus suppression	0.05 (0.03)	1.96	.052	-0.00	0.11

Note: n = 118, LLCI, lower limit 95% bootstrap confidence interval; ULCI, upper limit 95% bootstrap confidence interval. ARS = anger rumination. * *p* < .05 ** *p* < .001

Results showed that individuals in the reappraisal and control conditions, did not differ in WaP RT to individuals in the suppression condition, holding constant anger rumination. There was a significant main effect of anger rumination on WaP RT; as anger rumination increased, aggression towards animals increased (i.e., WaP reaction time decreased), β = .04, *t* = -2.15, *p* = .034.

Furthermore, anger rumination and emotion regulation strategies interacted significantly to predict WaP RT (see Figure 7.) The main effects of anger rumination and reappraisal versus suppression remained significant alongside the interaction effect, providing support for partial, not full moderation. When utilising suppression as an emotion regulation strategy, anger rumination predicted a decrease in WaP reaction time (simple slope *B* = -0.04, *t* (111) = -2.15, *p* = .034). R^2 increase as a result of the interaction was only marginally significant, likely due to the lack of significant interaction between anger rumination and reappraisal as an emotion regulation strategy, $R^2\Delta$ = .038, *F* (2,111) = 2.66, *p* = .074.

A post hoc power analysis (Faul et al., 2009) for achieved power (R^2 increase) was also conducted. The achieved R^2 of 0.451 equals a small effect size (f^2) of 0.021 (Cohen, 1988). The alpha level of 0.05 and n = 120 suggest a power of .27, which is below the minimum required power.
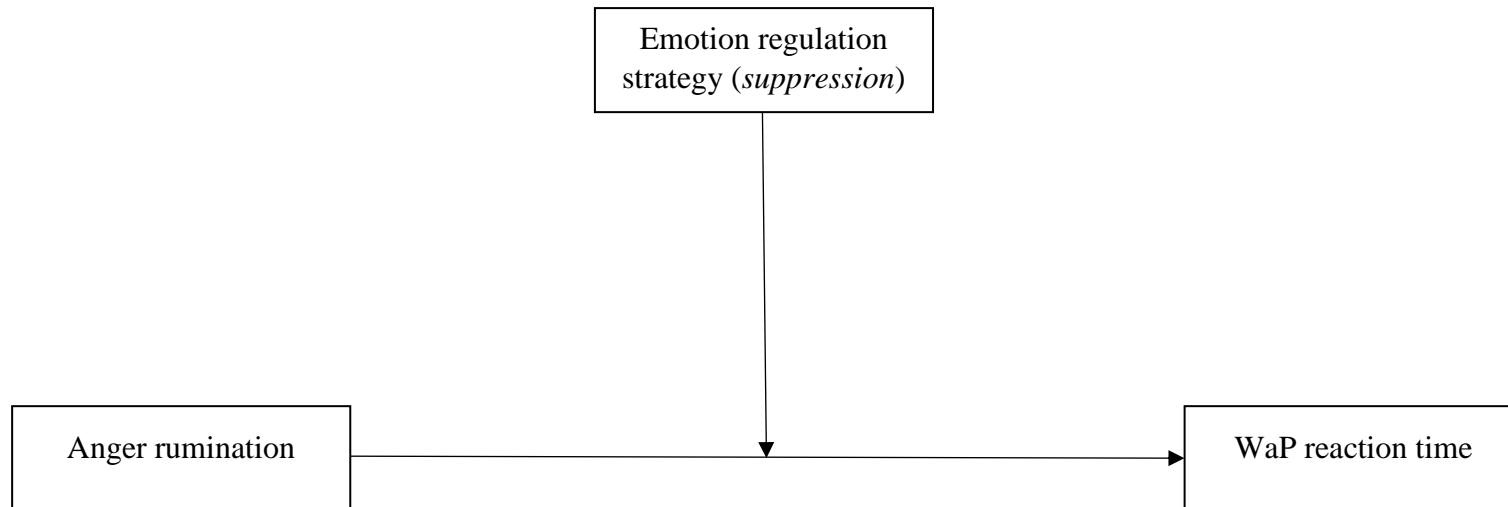
Figure 7: Conceptual depiction of moderation model (controlling for gender effects).
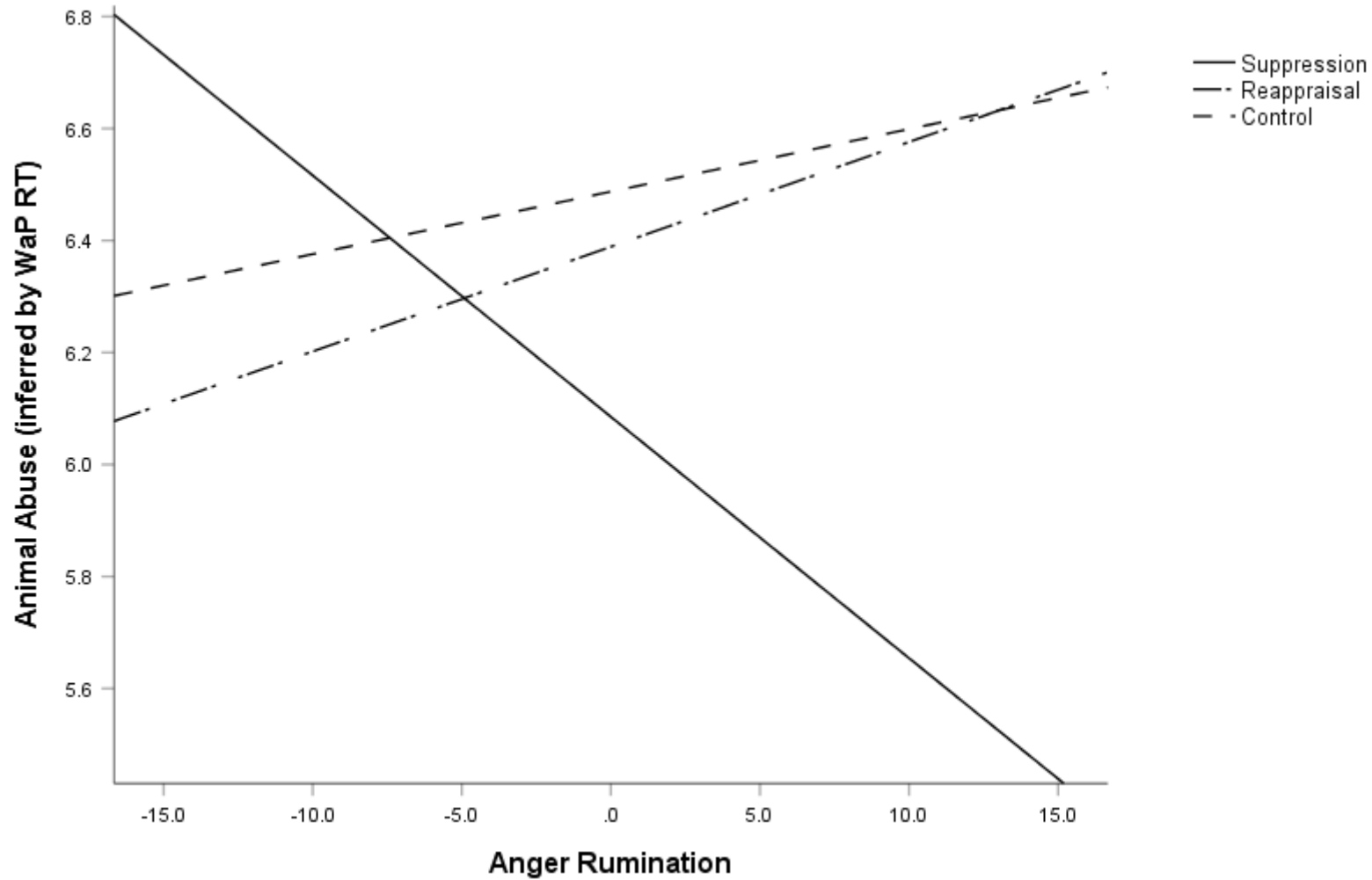
Figure 8: Suppression as an emotion regulation strategy, versus, reappraisal and control group, moderates the association between anger rumination and WaP reaction time (RT).

Discussion

The findings of this study further demonstrated the relationship between anger rumination and aggression towards animals. In line with the hypothesis (i.e., anger rumination would predict aggression towards animals), anger rumination and WaP reaction time were negatively correlated. Individuals who were more prone to anger rumination were quicker to engage in aggression towards animals, therefore considered more hostile. When examining the experimental conditions, the magnitude of this negative correlation was exacerbated when individuals engaged in suppression as an emotion regulation strategy. Thus, our initial hypotheses are supported. The more someone ruminates, the faster they are to aggress towards animals. When suppression is utilised as an emotion regulation strategy, the effect is then amplified. The insufficient power of this study is notable. According to McClelland and Judd (1993), when testing power for moderation the outcomes are often low when one or both of the variables are continuous. As a result of this, there is a general preference for conducting mediation analyses as opposed to moderation. Similarly, Aguinis, Beaty, Boik and Pearce (2005) noted that the average effect size of a moderation is 0.009, which led the authors to conclude that a more lenient standard of small, medium and large effect sizes might be considered.

Study 6

When examining the relationship between anger rumination, emotion regulation and animal abuse, it is useful to further explore the differences between the types of animal abuse identified in existing literatures. Importantly, this thesis argues (see Chapter 1) that the emotion regulation strategies, under-regulation and mis-regulation, mimic the two styles of animal abuse taken from the animal abuse literature; direct and indirect. Direct animal abuse is where a perpetrator explicitly and directly aggresses towards the animal (Alleyne et al.,

2015). For example, an individual who is provoked by an animal fails to regulate their emotions effectively, resulting in a direct and violent attack on the animal. Whereas indirect animal abusers use an animal as an alternate outlet for aggression, despite being provoked by another person/situation (Alleyne et al., 2015). For example, an individual who is provoked by another person, or a particular situation, suppresses their emotions, as not to aggress towards that person. However, the utilisation of suppression only increases their likelihood to aggress impulsively, resulting in them directing their aggression towards an animal. Study 5 has found support for this effect (i.e., anger rumination increases aggression towards animals, specifically when utilising suppression). Thus, Study 6 examined direct and indirect forms of aggression towards animals to further explore how anger rumination and the different emotion regulation strategies predict and influence these different types of abuse.

On the basis of previous research and current findings, it is important to assess the roles of related psychological constructs to see if they can shed further light on how anger rumination relates to emotion regulation and direct and indirect forms of animal abuse proclivity. Given that these constructs have seldom been looked at in relation to emotion regulation, it is important that we identify their role in the animal abuse offence process. Specifically, impulsivity has been linked to animal abuse in the existing literature (Newberry, 2017; Ramirez & Andreu, 2006) and can arguably be linked to both the under-regulation and mis-regulation of emotions (see Chapter 1). Therefore, how impulsivity relates to emotion regulation and the different forms of animal abuse proclivity was examined in the present research. Anthropomorphism was also examined in relation to the related constructs. Previous research has demonstrated that anthropomorphism increases intentions to behave beneficially towards dogs (Butterfield, Hill, & Lord, 2012). Thus, we would expect that it would have a similarly positive impact on individuals desire to aggress towards animals.

Furthermore, taken from Study 1 and 2, this study will also further examine the role of animal-oriented empathy, childhood animal abuse and childhood experiences of abuse/neglect in the facilitation of direct and indirect animal abuse proclivity.

Given the literature reviewed, we devised the following hypotheses: (1) emotion regulation strategies (specifically reappraisal and suppression), would be significantly related to direct and indirect animal abuse proclivity; (2) childhood animal abuse and experiences of abuse and neglect would be associated with direct and indirect animal abuse, although we expect that this relationship might be stronger for indirect animal abuse proclivity based on research on anger rumination; (3) psychological factors, such as empathy, anthropomorphism, rumination, and impulsivity, will be related to animal abuse, although we expect that the relationship between impulsivity and direct animal abuse will be stronger, and that empathy and anthropomorphism has a positive influence of animal abuse proclivity.

Method

Participants

One-hundred and ninety-nine participants were recruited from the Prolific Academic crown sourcing platform. Ninety-eight (49.2%) males, 100 (50.3%) females and 1 (0.5%) transgender, with ages ranging from 18 to 82 years old ($M = 34.6$, $SD = 11.7$) were retained for data analysis. Participants identified as White/Caucasian (86.9%), Asian (4.0%), Black (4.0%), East Asian (1.0%), Latino (1.0%), and Other (3.0%). All participants of this study were residents from the UK and were paid £5.00 in compensation.

Design and Measures

The design and measures were identical to that employed in Study 5 with a few exceptions. In the current study, impulsivity, emotional toughness towards animals, anthropomorphism, childhood animal abuse and experiences of abuse/neglect were included

as baseline-measures, and the animal abuse proclivity scale was used as the outcome measure to examine the differences and similarities between direct and indirect animal abuse.

Barratt Impulsiveness Scale (BIS-11). The BIS-11 (Patton et al., 1995) was used to measure trait impulsivity. It consists of 30 statements relating to how people act and think in different situations. The statements form into three subscales: non-planning, motor impulsivity, and attentional impulsivity. Participants were required to indicate on a 5-point scale, ranging from 1 (*Rarely/Never*) to 5 (*Almost Always/Always*), which response best describes the way they act or think. Higher scores indicate increased impulsivity. Example items include: "I plan tasks carefully", and "I concentrate easily". The BIS-11 has demonstrated good internal validity with Cronbach's alphas ranging from .79 to .82 (Vasconcelos, Malloy-Diniz, & Correa, 2012). In the current sample, internal reliability was acceptable (non-planning, $\alpha =.71$; motor, $\alpha = .71$; attentional, $\alpha = .72$).

Emotional Toughness toward Animals Scale (ETAS). To assess callousness toward non-human animals, this study utilised the ETAS (Gupta & Beach, 2000). Items were summed to create an overall score, where higher scores indicated greater insensitivity toward animals. In the current study, internal reliability was acceptable at .76 (See Chapter 2 for further details).

Anthropomorphic Tendencies Scale (ATS). The ATS (Chin et al., 2005) is a self-report measure of anthropomorphism when interacting with non-human living beings and objects. The ATS has four subscales: extreme anthropomorphism (e.g., "A stuffed toy is intelligent like a human is intelligent"), anthropomorphism of pets (e.g., "I treat a pet like a human"), anthropomorphism towards God (e.g., "A God or higher power has a spirit or life-force like people do") and negative anthropomorphism (e.g., "I would yell at a computer if it did something I did not like"). For this study, the extreme anthropomorphism subscale was not included as it was not assessing a sub-construct of anthropomorphism appropriate to

compare to the AAPS. The remaining subscales were used together as one composite measure of anthropomorphism. The ATS has not been appropriately validated as of yet, therefore, we were unable to assess the psychometric properties found in previous studies. However, we found that the ATS had good internal consistency in the current study ($\alpha = .82$).

Childhood Experiences of Animal Abuse. To assess childhood experiences of animal abuse, this study utilised Flynn's (1999) adapted version of the original Boat Inventory on Animal-Related Experiences (BIARE; Boat, 1999), which excludes items relating to sexual contact with animals. This modified version also excluded sections on pet ownership and pet attachment, and observed animal abuse, and only included the section on participation in animal abuse. This consisted of five items with 'yes' or 'no' responses. For each item, participants were instructed to only report incidences up to the age of 16 so that childhood experiences could be assessed individually. Items included 'Have you ever killed a pet?', and 'Have you ever killed a stray animal?'. Any '*yes*' responses to the four items were interpreted as involvement in childhood animal abuse.

Childhood Trauma Questionnaire Short-Form (CTQ-SF). To assess experiences of abuse or neglect, this study utilised the CTQ-SF by Bernstein and Fink (1998). Items for each subscale were summed and then categorised into none, low, moderate, or severe, based on the thresholds identified in the scoring manual. In the current sample, internal reliability was acceptable (emotional abuse, $\alpha = .85$; physical abuse, $\alpha = .88$; sexual abuse, $\alpha = .89$; emotional neglect, $\alpha = .87$; physical neglect, $\alpha = .75$; minimisation/denial, $\alpha = .90$). (See Chapter 2 for further details).

Emotion Regulation Instructions (adapted from Richards & Gross, 2000). Three experimental conditions were established: control, reappraisal, and suppression (See Study 5 for further details).

Film Stimulus. To elicit experiences of the desired emotion, *anger*, participants were shown two brief film clips (see Appendix I. for synopses of the stories). These film clips were chosen based on previous findings to ensure that most participants would experience the desired emotional response tendencies (Hewig et al., 2005).

Animal Abuse Proclivity Scale (AAPS). The AAPS is a self-report measure developed by Alleyne et al. (2015). Participants' likelihood to engage in animal abuse is measured through six hypothetical scenarios which participants are instructed to read and imagine themselves as the protagonist, before responding to four items

Item responses on all subscales (i.e., thrilled, powerful, propensity and enjoyment of other's reaction) were summed for a direct ($\alpha = .85$) and indirect ($\alpha = .90$) proclivity score. (See Chapter 2 for further details).

Manipulation Check (adapted from Richards & Gross, 2000). Eight items were developed to assess the success of instructions given (e.g., "When I was getting involved with the video, I tried to see things through another perspective"; "When I felt emotions, I tried to not express them"). The items were rated on a five-point scale, ranging from 1 (*not at all*) to 5 (*a great deal*), and assessed the success of the reappraisal and suppression instructions.

Procedure

All procedures were approved by the University's Ethics committee. All data were collected online, via Qualtrics. The procedure was identical to that employed in Study 5, however additional measures were included prior to the task, and the outcome measure utilised a proclivity scale, as opposed to the previously utilised WaP. After providing their informed consent, participants were asked to complete some demographic information, followed by items on childhood animal abuse, anger rumination scale, Barratt impulsiveness scale, emotional toughness towards animals scale, anthropomorphic tendencies scale, and the childhood trauma questionnaire in a randomised order. Participants were told that they would

view two short film clips. Immediately before viewing the clips, they were given either control, reappraisal or suppression instructions. The sequence which the film clips were shown at was randomised, as was the order of the control, reappraisal and suppression instructions. After watching the film clips, participants completed the animal abuse proclivity scale, followed by the manipulation check items. Finally, participants were provided with an information sheet and fully debriefed.

Results

We entered the data into IBM SPSS Statistics Version 25 where all of the analyses were conducted using a $p < .05$ level of significance.

Manipulation check

The first analysis tested whether participants used the emotion regulation strategies instructed (see Table 10.). Results indicate a statistically significant main effect of regulation condition on suppression manipulation check questions, $F (2, 197) = 10.71$, $p = < .001$. Contrasts suggested that the manipulation check questions for suppression instructions were marginally different between the suppression and reappraisal conditions ($p = .060$), and significantly different between the suppression and control conditions ($p = < .001$).

Regarding the reappraisal manipulation check, results indicate a main effect of regulation condition on reappraisal manipulation check questions, $F (2, 197) = 4.13$, $p = .018$. Contrasts revealed significant differences between reappraisal and suppression conditions ($p = .015$). Overall, the manipulation check is considered successful given that the suppression manipulation check scores highest in the suppression condition, and the reappraisal manipulation check scores highest in the reappraisal condition.

Table 10. *Means and standard deviations of the manipulation check questions (reappraisal and suppression) as a function of regulation condition.*

	Control Condition (*n* = 68)	Reappraisal Condition (*n* = 64)	Suppression Condition (*n* = 67)
Reappraisal's manipulation check	*M* = 2.36 *SD* = 1.24	*M* = 2.78 *SD* = 1.24	*M* = 2.16 *SD* = 1.18
Suppression's manipulation check	*M* = 2.49 *SD* = 1.03	*M* = 2.92 *SD* = 1.14	*M* = 3.36 *SD* = 1.10

Bivariate Analyses

We conducted one-way analysis of variances (ANOVAs) to see whether the different types of animal abuse proclivity (direct vs. indirect) varied as a function of the emotion regulation condition (reappraisal, suppression, or control). The results showed no significant effect for emotion regulation condition on direct animal abuse (F (2, 168) = 0.07, p = .936) or indirect animal abuse proclivity (F (2, 198) = 0.16, p = .850; see Table 11 for means and standard deviations).

Table 11. *Means and standard deviations of the animal abuse proclivity (direct vs. indirect) as a function of regulation emotion condition.*

	Control Condition (*n* = 68)	Reappraisal Condition (*n* = 64)	Suppression Condition (*n* = 67)
Direct animal abuse proclivity	*M* = 15.59 *SD* = 4.80	*M* = 15.91 *SD* = 5.77	*M* = 15.85 *SD* = 5.55
Indirect animal abuse proclivity	*M* = 14.38 *SD* = 3.88	*M* = 14.80 *SD* = 6.23	*M* = 14.82 *SD* = 4.65

Given that the emotion regulation strategy manipulation did not have an effect on the animal abuse proclivity scale, the socio-demographic characteristics and background factors associated with direct and indirect animal abuse propensity were examined. A bivariate correlation was carried out with age, gender, pet ownership, childhood animal abuse, childhood experiences of abuse or neglect, and animal abuse propensity (direct and indirect; see Table 12.). Both direct and indirect animal abuse propensity showed significant positive

correlations with childhood animal abuse, childhood abuse and neglect (physical and
emotional). Additionally, direct animal abuse propensity showed a significant negative
correlation with participants' age and gender.

To examine which psychological factors were associated with direct and indirect
animal abuse propensity, a bivariate correlation was then carried out with the ARS (including
subscales), BIS-11 (including subscales), ETTAS, ATS, and animal abuse proclivity (direct
and indirect; see Table 13.). Both direct and indirect animal abuse propensity showed
significant positive correlations with emotional toughness towards animals. Direct animal
abuse propensity also showed a significant positive correlation with non-planning
impulsivity.

Table 12. *Bivariate correlations between sociodemographic characteristics, background factors and animal abuse propensity.*

Variables	Means (SD)	Response Range	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	34.60 (11.69)	18 - 82	-											
2. Gender	1.51 (0.50)	1 - 2	.05	-										
3. Pet ownership	1.35 (0.48)	1 - 2	.08	-.20**	-									
4. Childhood animal abuse	0.11 (0.33)	0 - 2	.01	-.19**	.17*	-								
5. CTQ-SF EA	8.79 (3.91)	5 - 25	-.10	.09	-.12	.13	-							
6. CTQ-SF PA	6.51 (3.19)	5 – 25	.05	.01	-.11	.11	.70**	-						
7. CTQ-SF SA	5.56 (2.00)	5 - 22	.02	.16*	-.06	-.02	.24**	.19**	-					
8. CTQ-SF EN	10.25 (4.41)	5 - 22	.02	-.05	-.07	.01	.69**	.59**	.22**	-				
9. CTQ-SF PN	9.50 (3.36)	5 - 23	.09	-.06	-.13	.01	.49**	.50**	.28**	.53**	-			
10. CTQ-SF MD	9.84 (3.38)	3 - 15	.02	-.01	.04	-.09	-.67**	-.56**	-.23**	-.81**	-.48**	-		
11. AAPS direct propensity	3.63 (1.41)	3 - 11	-.18*	-.15*	.07	.14*	.24**	.22**	.14	.15*	.19**	-.15*	-	
12. AAPS indirect propensity	3.47 (1.31)	3 - 13	-.12	-.13	.07	.15*	.23**	.25**	.20	.14*	.22**	-.23**	.68**	-

Note: CTQ-SF EA = Emotional Abuse, CTQ-SF PA = Physical Abuse, CTQ-SF SA = Sexual Abuse, CTQ-SF EN = Emotional Neglect, CTQ-SF PN = Physical Neglect, CTQ-SF MD = Minimisation/ Denial, AAPS = Animal Abuse Proclivity Scale. * $p < .05$ ** $p < .001$

Table 13. *Bivariate correlations between psychological factors and animal abuse propensity.*

Variables	Means (SD)	Response Ranges	1	2	3	4	5	6	7	8	9	10	11
1. ARS angry afterthoughts	12.60 (4.30)	6 - 23	-										
2. ARS thoughts of revenge	6.90 (2.57)	4 - 15	.76**	-									
3. ARS angry memories	10.71 (3.61)	5 - 19	.79**	.69**	-								
4. ARS understanding of causes	9.06 (2.99)	4 - 16	.78**	.65**	.76**	-							
5. BIS-11 attentional	15.83 (3.70)	8 - 31	.43**	.41**	.39**	.41**	-						
6. BIS-11 motor	21.87 (4.37)	11 - 37	.27**	.29**	.17*	.27**	.43**	-					
7. BIS-11 non-planning	23.74 (4.81)	11 - 40	.17*	.23**	.16*	.11	.44**	.47**	-				
8. ETTAS	18.49 (7.09)	10 - 45	-.01	.15*	-.00	-.07	-.01	-.03	.05	-			
9. ATS	108.34 (13.59)	54 - 144	.17*	.12	.19**	-.16*	.03	.16*	-.06	-.29**	-		
10. AAPS direct propensity	3.63 (1.41)	3 – 11	-.04	.08	-.03	-.10	.08	.06	.17*	.33**	-.01	-	
11. AAPS indirect propensity	3.47 (1.31)	3 - 13	-.06	.05	-.04	-.06	.06	.09	.14	.25**	.01	.68**	-

Note: ARS = Anger Rumination, BIS-11 = Barratt Impulsiveness, ETTAS = Emotional Toughness Towards Animals, ATS = Anthropomorphic

Tendencies, AAPS = Animal Abuse Proclivity Scale. * $p < .05$ ** $p < .001$

Multivariate Analyses

In order to identify which significant sociodemographic and psychological factors accounted for the most variance in direct and indirect animal abuse propensity, two separate linear regressions were conducted.

For direct animal abuse propensity, the results of the regression indicated that the model explained 22.3% of the variance and that the model was significant, $R^2 = .223$, $F(10, 197) = 5.38$, $p < .001$. It was found that age, emotional abuse, emotional toughness towards animals and non-planning impulsivity significantly predicted direct animal abuse propensity (see Table 14. for β coefficients and p values). A post hoc power analysis (Faul et al., 2009) for achieved power (R^2 deviation from zero) was also conducted. The achieved R^2 of 0.223 equals a medium effect size (f^2) of 0.287 (Cohen, 1988). The alpha level of 0.05 and $n = 199$ suggest a power of .99.

Table 14. *Regression statistics for related measures predicting direct animal abuse propensity.*

	Means (*SD*)	β	t	p	sr^2
Age	34.60 (11.69)	-.16	-2.39	.018	-.154
Emotional Abuse	8.79 (3.91)	.22	1.93	.055	.125
ETTAS	18.49 (7.09)	.30	4.29	.000	.276
Non-planning Impulsivity	23.74 (4.81)	.14	2.01	.046	.129

Notes: ETTAS = Emotional Toughness towards Animals

For indirect animal abuse propensity, the results of the regression indicated that the model explained 16.6% of the variance and that the model was significant, $R^2 = .166$, $F(7, 198) = 5.42$, $p < .001$. It was found that emotional neglect and emotional toughness towards animals significantly predicted indirect animal abuse propensity (see Table 15. for β

coefficients and *p* values). A post hoc power analysis (Faul et al., 2009) for achieved power (R^2 deviation from zero) was also conducted for the indirect animal abuse model. The achieved R^2 of 0.166 equals a medium effect size (f^2) of 0.199 (Cohen, 1988). The alpha level of 0.05 and *n* = 199 suggest a power of .99.

Table 15. *Regression statistics for related measures predicting indirect animal abuse propensity.*

	Means (*SD*)	*β*	*t*	*p*	sr^2
Emotional Neglect	10.25 (4.41)	-.30	-2.40	.017	-.159
ETTAS	18.49 (7.09)	.23	3.35	.001	.221

Notes: ETTAS = Emotional Toughness towards Animals

Discussion

The results of this study are generally inconsistent with the first hypothesis, which has largely been attributed to the experimental manipulation having no impact on the variable of interest. Whilst participants followed the manipulation instructions correctly, direct and indirect animal abuse did not vary as a function of emotion regulation condition. The animal abuse proclivity scale was the only measure taken post-manipulation. Given that proclivity scales are designed to assess stable traits in participants, manipulating them through experimental techniques can be difficult and often ineffective. From these results we can infer that the manipulation did not influence animal abuse proclivity. Thus, all following analyses were conducted whilst disregarding the experimental manipulation.

Consistent with our second hypothesis, it was found that childhood experiences of animal abuse and childhood experiences of abuse and/or neglect were positively correlated with direct and indirect animal abuse propensity. Although it was expected that this

relationship would be stronger for indirect animal abuse, due to the increased potential for displaced aggression, there were no significant differences between the two groups.

In line with our second hypothesis, emotional toughness towards animals was positively related to both direct and indirect animal abuse. Furthermore, we predicted that impulsivity would be more strongly related to direct animal abuse than indirect animal abuse. Results supported this hypothesis as non-planning impulsivity was positively correlated with direct animal abuse propensity. Contrary to studies 1, 2 and 5, anger rumination was not significantly related to animal abuse propensity (direct or indirect). When examining which factors that were most important in predicting direct animal abuse propensity, age, emotional abuse, emotional toughness towards animals and non-planning impulsivity were significant predictors. Likewise, when examining which factors were most important in predicting indirect animal abuse propensity, emotional neglect and emotional toughness towards animals were the most significant predictors.

General Discussion

The experimental studies in this chapter examined how manipulating emotion regulation would influence general aggression towards animals, and then whether this relationship varied depending on the type of animal abuse (direct versus indirect). In Study 5, the emotion regulation strategy, suppression, partially moderated the relationship between anger rumination and animal abuse. In line with our predictions, individuals who were more prone to anger rumination were quicker to aggress towards animals. The magnitude of this negative correlation was heightened when individuals engaged in suppression.

Previous literature has implicated anger rumination as playing a significant role in aggression (for a review, see Denson, 2013). Specifically, it exacerbates and prolongs feelings of anger (Bushman, 2002; Bushman et al., 2001). Furthermore, suppression is

characterised by ignoring or denying emotional experiences, and is often accompanied by heightened physiological arousal (Szasz, Szentagotai-Tatar, & Hofmann, 2011). The mis-regulation of emotions through suppression may also reduce inhibitions towards violence and aggression (Roberton et al., 2012). Thus, the combined effects of anger rumination and suppression increases aggression towards animals.

Contrary to our predictions, Study 6 found no significant effects for emotion regulation on direct or indirect animal abuse proclivity, measured by the AAPS. In this instance it is possible that a methodological limitation can account for this null finding. Specifically, this experiment employed the AAPS as the outcome measure of animal abuse. The AAPS, like most proclivity scales, are designed to assess stable traits in participants, therefore manipulating them through experimental techniques can be difficult. Nonetheless, Study 6 has identified which psychological factors, when controlling for background/socio-demographic factors, best predict direct and indirect animal abuse. As expected, direct animal abuse propensity was predicted by childhood emotional abuse, emotional toughness towards animals, and non-planning impulsivity. Likewise, indirect animal abuse propensity was predicted by childhood emotional neglect and emotional toughness towards animals.

The relationship between childhood emotional abuse and direct animal abuse propensity supports existing research. For example, Flynn (1999) found that adult perpetrators of animal abuse were more likely to report being exposed to harsh/punitive parenting styles during their childhood. Furthermore, emotional abuse has previously been linked to adult aggression (Sansone & Sansone, 2012). Berzenski and Yates (2010) demonstrated, from their computerised questionnaire, that emotional abuse was associated, specifically, with the perpetration of intimate partner violence as an adult. Previous research has found that intimate partner violence co-occurred with animal abuse in 60% of families referred to services for child abuse (DeViney et al., 1983). The above associations provide

interesting support for a pattern of offending which starts in childhood through emotional abuse, and later develops into intimate partner violence, which is known to co-exist with animal-related offending. Taken together, the above findings support the association between emotional abuse and direct animal abuse propensity.

The research in this chapter also supports previous findings in this thesis and the existing literatures, that empathy deficits are predictive of animal abuse perpetration. Study 1 identified the important role of empathy in the facilitation of animal abuse. Results from Study 6 further develops upon these findings by examining emotional toughness towards animals as a predictor for both direct and indirect forms of animal abuse. Although empathy is known to be a key factor contributing to the development of animal abuse (Alleyne et al., 2015; Erlanger & Tsytsarev, 2002, Jolliffe & Farrington, 2004), most existing studies have focused on human-related empathy. This study identifies animal-related empathy in the form of emotional toughness towards animals as predictive of animal abuse.

Additionally, research presented within this chapter further supports the distinctions between direct and indirect forms of animal abuse. Specifically, Study 6 found non-planning impulsivity to be uniquely predictive of direct animal abuse. The animal abuse literature often classifies individuals as 'animal abusers' and 'non-animal abusers' (Newberry, 2017), which means the associated factors are then attributed to animal abusers generally. The findings from this chapter go one step further by identifying a psychological trait, namely, non-planning impulsivity, which is uniquely predictive of direct animal abuse. Future research should further examine the different types of animal abuse and the unique psychological factors which are associated with them.

In short, the findings of these two studies indicate that emotion regulation plays an important role in the facilitation of adult perpetrated animal abuse as previously suspected. Specifically, if a person employs a maladaptive emotion regulation strategy (i.e.,

suppression), they become more aggressive. These findings provide a strong foundation for future research avenues seeking the causal effects of emotion regulation in the perpetration of different types of animal abuse.

CHAPTER SIX

Summary, Conclusions and Suggestions for Future Research

Background and aims of thesis

Animal abuse can take many different forms but the consequences are always upsetting and sometimes fatal for the animal involved. Thus far, researchers have examined how animal abuse should be defined, classified, and empirically measured (e.g., Ascione, 2001; Ascione et al., 2007; Merz-Perez & Heide, 2004). Studies have been conducted to explore the psychological and behavioural predictors of animal abuse perpetration and/ or supportive attitudes (e.g., Alleyne et al., 2015; Erlanger & Tsytsarev, 2012; Febres et al., 2014; Gupta, 2008; Raupp, 1999). Researchers have also documented the associations between animal abuse and other types of offending behaviour, including interpersonal violence (Baxendale, Lester, Johnston, & Cross, 2015; Coston & Protz, 1998; Flynn, 2011; Hensley, Tallichet, & Dutkiewicz, 2012; Vaughn et al., 2009; Walters, 2014). Despite these positive advancements in knowledge, research and theory focusing on the motivations for such behaviour appear to be sparse and limited in development when compared to other types of offending behaviour, such as interpersonal violence. Specifically, given the emotional contexts that animal abuse typically occurs (e.g., Alleyne & Parfitt, 2017), research examining the role of regulatory processes is generally lacking. For example, rejection sensitivity, emotional attachment, empathy deficits and emotional violence have all been associated with the perpetration of animal abuse in the literature (Flynn, 2000; Gullone, 2012,

2014; Gupta, 2008; Hardesty et al., 2013; Simmons & Lehmann, 2007; Strand & Faver, 2005). Nonetheless, animal abuse has yet to be fully conceptualised within an emotion regulation framework.

This thesis investigated the general hypothesis that maladaptive emotion regulation facilitates animal abuse perpetrated by adults. We focused on two specific emotion regulation styles that have been implicated in existing literature; that is, the mis-regulation and under-regulation of emotions. Based on existing research and theories, this thesis explored the facilitative role emotion regulation plays in the perpetration of animal abuse. The current research set out to construct a novel conceptual framework, explicating the role of emotion regulation in animal abuse perpetration. In utilising the framework, a series of six studies were conducted. This research examined how emotion regulation facilitates animal abuse and how it interacts with the existing psychological and behavioural factors associated with animal abuse perpetration, compared to other types of offending. Following this, a behavioural proxy measure of animal abuse perpetration was developed and validated. In doing so, the impact of the under-regulation and mis-regulation of emotions on animal abuse perpetration could be further examined. Furthermore, this thesis aimed to establish the effects of emotion regulation in participants' self-reported animal abuse proclivity, and the psychological mechanisms that underlie or predict this relationship.

Summary of findings

In Chapter 2, two correlational studies (Studies 1 and 2) were conducted to identify the socio-demographic and psychological factors (i.e., animal-appraisal, self/emotion-regulation) associated with animal abuse perpetration. Study 1 examined which of these factors predicted animal abuse in a community sample ($n = 106$). Following this, Study 2

examined how these factors distinguished self-reported animal abusers from other types of violent offenders and non-offenders utilising a community sample ($n = 149$).

In relation to the sociodemographic factors examined, emotional neglect and physical neglect were significant predictors for self-reported animal abuse in Study 1. For Study 2, this relationship was further supported when comparing animal abusers with non-offenders, in that emotional neglect and physical neglect were identified as significant predictors of animal abuse. However, both Study 1 and Study 2 found no significant differences across animal abusers, violent offenders, and non-offenders in relation to childhood animal abuse. In relation to the psychological factors of interest, Study 1 found that the relationship between emotional neglect and animal abuse was mediated by anger rumination. Furthermore, Study 2 found that animal abusers compared to violent offenders presented with a decreased ability to engage in cognitive reappraisal. Difficulties with emotion regulation was not significantly related to animal abusers across both studies.

Study 1 also identified empathy deficits as an important factor in predicting animal abuse. Specifically, animal abuse was positively correlated with emotional toughness towards animals. However, in Study 2 animal empathy was not found to be a distinguishing factor for animal abusers compared to violent offenders, and non-offenders. Anger rumination was, however, identified as a distinguishing factor for animal abusers. In both Studies 1 and 2, animal abuse was positively correlated with anger rumination.

Chapter 3 presented a qualitative analysis that was conducted to further explore the animal abuse offence chain, specifically related to emotion regulation, in a population of self-reported animal abusers ($n = 49$). Specifically, respondents provided details on the methods of abuse, the circumstances surrounding the abuse, their motivations, and the perceived consequences. Four themes were identified within the data: *Types of Animal Abuse; Lack of*

Emotional Control; Emotional Reaction; and *Animal Empathy*. These themes are discussed in relation to existing literature and the implications are considered.

Chapter 4 reported the development and validation of the Whack-a-Pet (WaP) behavioural proxy to facilitate experimental exploration of the psychological mechanisms that facilitate animal abuse behaviour. The online *Whack-a-Mole* style task had the student participants ($n = 95$) hit stimuli appearing at different intervals using a cursor. There were three conditions: (1) pets (i.e., represented by images of cats and dogs) with blood animation on 'HIT'; (2) pets with no 'HIT' animation; and (3) a control condition (i.e., represented by a beach ball with pop animation on 'HIT'. As preliminary support for convergent validity, in the 'pets with no 'HIT' animation' condition of the WaP, participants who reported reduced positive affect were less likely to aggress towards animals, and those who reported increased negative affect were more empathetic and held more positive attitudes towards animals. Furthermore, individuals who made more attempts to hit the animal stimuli presented with reduced animal-directed empathy, and those who reported a greater proclivity to engage in animal abuse also had increased reaction times. Based on these findings, the WaP 'pets with no blood' condition exhibited a theoretically meaningful pattern of correlations that support the convergent validity of this measure. Consequently, the 'pets with no blood' condition of the WaP was utilised as a behavioural proxy for animal abuse in all subsequent studies in this thesis. Additionally, standardised reaction time was utilised as the outcome measure for the WaP in Study 5 due to the usefulness of using implicit measures to overcome the limitations of self-report methods.

In Chapter 5, two experimental studies (Study 5 and Study 6) were conducted to investigate the effects of emotion regulation in accounting for individual differences in aggression towards animals (inferred by the WaP; Study 5) and self-reported animal abuse proclivity (direct versus indirect; Study 6). In exploring the underlying causal relationship of

these variables, the emotion regulation strategy utilised was manipulated in each study. Depending on condition, participants were instructed to engage in *suppression*, *reappraisal*, or given no instructions at all when watching emotion eliciting film clips, before reporting their proclivity to engage in animal abuse, or complete the WaP game. In Study 5, emotion regulation strategy *suppression*, partially moderated the relationship between anger rumination and time taken to aggress towards animals. In line with predictions, individuals who were more prone to anger rumination were quicker to aggress towards animals. The magnitude of this negative correlation was heightened when individuals utilised suppression as an emotion regulation strategy.

Contrary to our predictions, Study 6 found no significant effects for emotion regulation on direct or indirect animal abuse. However, it did show which psychological factors (when controlling for background/socio-demographic factors) best predict direct and indirect animal abuse. Specifically, direct animal abuse propensity was predicted by childhood emotional abuse, emotional toughness towards animals, and non-planning impulsivity. Likewise, indirect animal abuse propensity was predicted by childhood emotional neglect and emotional toughness towards animals.

Theoretical Implications of Findings

Extension of existing theoretical frameworks

As noted in Chapter 1, the process of emotion regulation has an important role to play in facilitating individuals' engagement in animal abuse. Closely related constructs, such as poor impulse control and lack of other-oriented emotions, have previously been identified as important factors contributing to acts of antisocial behaviour, such as animal abuse (Arluke et al., 1999). Thus, drawing on existing criminological theories, and what we already know about emotion regulation, the process through which animal abuse occurs can be better

understood. Specifically, the existing criminological theories (e.g., General Aggression Model, self-control, strain-theory) consider how the individual and situation interact to influence the likelihood of aggression in a given scenario. In the context of animal abuse, the adapted model outlined in this thesis argued that the perceived provocateur would be an individual or animal. The third stage of the model focuses on appraisal and decision-making processes, and on aggressive or non-aggressive outcomes. In our adapted model, we applied elements of emotion regulation processes and proposed that the appraisal and decision-making process led to the under-regulation (i.e., impulsive actions), or mis-regulation (i.e., thoughtful action) of emotions. These outcomes mimic the two styles of animal abuse taken from the animal abuse literature; direct (i.e., the target is the perceived provocateur) and indirect (i.e., displaced aggression towards an animal). Hence, emotion regulation is an important theoretical concept that can be applied to understanding why an individual commits animal abuse. Based on our proposed adaptation of the General Aggression Model (GAM; Anderson & Bushman, 2002), this thesis identified six aims to explore the different elements of the proposed model (see Chapter 1). By substantiating these links, targets for intervention and prevention purposes can be identified.

The Self and Other Regulatory Processes that Distinguish Animal Abuse Behaviour

The research reported in this thesis demonstrated that animal abusers are a unique offending group compared to other types of violent offenders and non-offenders. On exploring the developmental aspects of emotion regulation, Studies 1 and 2 revealed emotional neglect and physical neglect experienced as a child to be distinguishing factors of animal abusers compared to non-offenders. In line with existing research, harsh/punitive parenting and a poor home environment have been identified as developmental factors which feed into maladaptive emotion regulation strategies (Currie, 2006; Flynn, 1999). Childhood animal abuse was not identified as an important distinguishing factor for animal abusers in

Studies 1 and 2. This is most likely due to limitations in the study's design discussed in Chapter 2.

Collectively, these findings provide further support for the socio-cognitive models of aggressive behaviour (e.g., Anderson & Bushman, 2002; Berkowitz, 1990), which propose that cognitive schemas that are focused on negative, hostile and aggressive scripts are heavily present among aggressive individuals relative to non-aggressive individuals. From a social-cognitive standpoint, these cognitive schemas, or aggressive scripts, play an important role in influencing the expression of aggressive behaviour (Berkowitz, 1990; Bushman, 1996). While individuals may hold specific cognitive schemas related to aggressive behaviour, such as the belief that aggression is a useful and acceptable conflict resolution strategy, it is also possible that more general, maladaptive and negative cognitive schemas impact the expression of aggression. Thus, individuals exposed to maladaptive childhoods that engage in animal abuse as a means of externalising this would be more inclined to engage in aggression, specifically towards animals as an adult.

Empathy deficits have been linked to negative attitudes towards the treatment of animals (Erlanger & Tsytsarev, 2012), animal abuse proclivity (Alleyne, Tilston, Parfitt, & Butcher, 2015), and behaviour (Alleyne & Parfitt, 2018; Gupta, 2008). However, findings from the studies presented in this thesis suggest that the relationship between empathy and animal abuse is more complex than first proposed. Study 1 and 6 found animal abuse to be positively correlated with emotional toughness towards animals (i.e., callousness towards animals). However, Study 2 did not replicate these findings when assessing the differences in animal empathy (i.e., empathy towards animals) between animal abusers, violent offenders and non-offenders.

This research does extend existing literature by showing animal-oriented callousness to be more important in distinguishing animal abusers from non-animal abusers. However,

given the inconsistencies in support for this relationship, it is warranted to argue that the relationship between animal abuse and empathy towards animals is not as simple as previously suggested. A study by Alleyne and Parfitt (2018) found empathy towards animals mediates the relationship between childhood exposure to animal killing and animal abuse perpetration, with anger regulation issues amplifying this relationship. Our results support this more complex relationship, whereby animal empathy is a facilitative factor, but only under certain conditions. The exact conditions under which animal empathy acts as a facilitative factor warrants further exploration.

On exploring the self and other regulatory processes that distinguish animal abusers, Studies 1 and 2 extend the current literature by revealing regulatory factors that are unique to animal abusers. Previous research is yet to explicitly examine emotion regulatory methods and how they relate to animal abuse perpetration. Study 2 found that animal abusers, compared to violent offenders, have a decreased ability to engage in cognitive reappraisal. Research suggests that reappraisers take a more optimistic approach, reinterpreting, and making efforts to deal with emotional distress (Gross & John, 2003). Individuals with insufficient mental resources to engage in reappraisal processing are more likely to engage in immediate appraisal and are less likely to control their aggressive responding when provoked, and respond impulsively (Roberton et al., 2012). These findings support the model proposed in Chapter 1, which argues that impulsive animal abuse is indicative of direct animal abuse, whereby perpetrators mis-regulate their emotions (i.e., unable to cognitively reappraise) and are therefore unable to inhibit aggressive responding.

Study 1 and 2's findings have also revealed anger rumination to be an important distinguishing factor for animal abusers. Whilst these studies are the first to explore anger rumination in relation to animal abuse perpetration, existing research has established links between anger rumination and more general aggressive behaviour (Bushman et al., 2005),

and anger regulation specifically (Alleyne & Parfitt, 2018). As a maladaptive emotion regulation strategy, anger rumination repeatedly focuses the individual's attention on negative events and emotions, increasing their cognitive load. Research has shown that high cognitive load increases the magnitude of aggressive response (Vasquez, 2009). Given that ruminators already have a limited cognitive capacity to engage in the appropriate regulation of emotions, this makes them more likely to aggress under provoking circumstances. Thus, this further substantiates the argument that emotion regulation is an important factor in the facilitation of animal abuse. Anger rumination was distinctly associated with animal abuse behaviour in Study 1, whereby it mediated the relationship between childhood emotional neglect and animal abuse. Previous studies have shown that individuals who have experienced childhood maltreatment are more prone to anger rumination (Connor et al., 2004; Spasojevi & Alloy, 2002). Specifically, adverse childhood experiences can cause a discrepancy between the present state (i.e., neglected) and desired state (i.e., cared for) which triggers rumination (Martin & Tesser, 1996). Internal conflict such as this can cause hypersensitivity to anger (Pollak, Messner, Kistler, & Cohn, 2009) which might help to explain why rumination mediates the relationship between emotional neglect as a child and animal abuse as an adult.

The Emotion Regulation throughout the Animal Abuse Offence Chain

The research reported in this thesis is also the first to examine the animal abuse offence chain, taking into account thoughts, feelings and the management of these at the various stages of perpetration. These findings further highlight the important role of emotion regulation in the facilitation of animal abuse. In relation to the GAM, the findings from Study 3 demonstrate that a lack of emotional control is experienced during the perpetration of animal abuse. Specifically, perpetrators reported engaging in animal abuse as a result of *frustration*, *fear*, *anger*, and acting on *impulse*. Following respondents' abusive behaviour,

the emotion-fuelled nature of this behaviour is further evidence by their negative emotional reactions to their own behaviour (i.e., *sadness*, *regret*, and *guilt*). Furthermore, whilst some respondents articulated an empathetic response to the animal victims (i.e., animal experienced *pain* and *fear*), others demonstrated a total lack of awareness for the implications of their actions (i.e., animal experienced *confusion* and *regret*).

The findings from Study 3 are also interesting to consider in relation to animal empathy and animal abuse perpetration literature. As noted in Chapter 1, researchers have argued that empathy deficits play a key role in animal abuse (Joliffe & Farrington, 2004). This finding was also supported in Study 1 and 6, but not in Study 2. Study 3 further demonstrates the complexity of this relationship. For example, some respondents acknowledged that their actions had negative implications on the animal victims (*i.e., pain and fear*). However, others clearly overlook the immediate harm caused by their behaviours and instead suggest the animal is somehow responsible for their actions (i.e., *regret*), or has limited understanding of the behaviour perpetrated against them (i.e., *confusion*). Evidently, and in line with more recent research (Alleyne & Parfitt, 2018), the relationships between animal empathy, emotion regulation and animal abuse perpetration are clearly intertwined.

Emotion Regulation and Individual Differences in Animal Abuse

Study 5 in the preceding chapter has shown that anger rumination (i.e., a maladaptive emotion regulation strategy) is correlated with more hostility towards animals, and that this relationship is enhanced (i.e., reactions times decrease further) by the utilisation of suppression, compared to reappraisal. Although the WaP game can only indicate time taken to aggress, the findings of this study indicate that maladaptive emotion regulation has the potential to influence animal abuse. As described earlier, anger rumination has been shown in previous studies to positively predict self-reported animal abuse (see Chapter 2). Furthermore, the suppression of emotions has been shown to increase negative affect, and

reduce inhibitions towards aggression (Roberton et al., 2012). The results from Study 5 support these findings, and provide empirical support for the predictive link between anger rumination and time taken to aggress towards animals (i.e., increased anger rumination predicts a decrease in reaction time). This relationship is further enhanced by the utilisation of suppression as an emotion regulation strategy.

The pattern of findings obtained in Study 5 are consistent with the literature which posits that anger rumination and suppression are capable of increasing aggressive responding (Collins & Bell, 1997; Roberton, Daffern, & Bucks, 2012). Anger rumination is considered to be a maladaptive emotion regulation strategy that repeatedly and negatively self-focuses on negative events and emotions (Roley et al., 2015; Watkins & Nolen-Hoeksema, 2014). Furthermore, suppressing emotional responses does not always reduce the experience of negative emotion, in some cases it can have the opposite effect (Gross & John, 2003; John & Gross, 2004). Evidently, the results from Study 5 demonstrate that these existing findings can also be applied to animal abuse perpetration. Specifically, anger rumination increases aggression by interfering with or reducing self-regulation capacity (Whitmer & Banich, 2010). Therefore, individuals who ruminate are less able to inhibit aggressive responding towards animals. When such individuals utilise suppression, this only increases their likelihood to aggress impulsively. Taken together, these findings support the association between maladaptive emotion regulation and animal abuse perpetration.

Study 6 further extends the existing literature by identifying factors uniquely predictive of direct and indirect forms of animal abuse propensity. Specifically, childhood emotional abuse and facets of impulsivity (i.e., non-planning impulsivity) are uniquely predictive of direct animal abuse propensity; and childhood emotion neglect is uniquely predictive of indirect animal abuse propensity. This is particularly interesting from a theoretical standpoint because it can begin to explain what distinguishes direct animal abusers

from indirect animal abusers. Direct animal abuse is defined as when the perpetrator explicitly and directly aggresses towards the animal (Alleyne et al., 2015). For example, an individual who is provoked by an animal fails to regulate their emotions effectively, resulting in a direct and violent attack on the animal. This thesis proposed that under-regulators are more prone to engage in direct animal abuse as they do not have the sufficient mental resources to engage in reappraisal processing which would otherwise prevent impulsive behaviours. The findings from this study provide support for this association.

Theoretical application to the adapted General Aggression Model

In relation to the adapted general aggression model (GAM) proposed in Chapter 1, Study 1 and 2's findings feed into stage one of the GAM, which outlines how person and situation (*animal*) factors increase or decrease the likelihood of aggression through their influence on the present internal state. Specifically, experiences of physical and emotion neglect in childhood feed into aggressive knowledge structures and aggression-related schemas (through anger rumination), which make aggression more likely, specifically animal-directed aggression. This influence is further enhanced by Study 1 and 6's findings which linked emotional toughness towards animals with perpetration of animal abuse. However, the relationship between maladaptive childhood experiences and emotional toughness towards animals warrants further exploration. Furthermore, these studies were correlation and require further experimental exploration to support a causal relationship.

The findings from the correlational studies (1 and 2) also begin to feed into stage two of the GAM, which focuses on the routes through which person and situation factors exert their influence on appraisal and decision processes. Specifically, given that anger rumination is a cognitive process that begins following an event that induces anger, it is likely to have a negative influence an individual's cognitive state, increasing their cognitive load. In turn, this may use up vital resources which would otherwise contribute towards adaptive emotion

regulation. Additionally, experiences of childhood maltreatment (i.e., emotional neglect) can cause individuals to be more prone to anger rumination (Connor et al., 2004; Spasojevi & Alloy, 2002). The internal conflict which develops from this can cause hypersensitivity to anger (Pollak, Messner, Kistler, & Cohn, 2009) which might help to explain why rumination mediates the relationship between emotional neglect as a child and animal abuse as an adult.

The GAM also posits that controlled, effortful appraisal leads to thoughtful behaviour rather than aggressive behaviour (Anderson & Bushman, 2002). Given that our findings suggest that animal abusers have a limited capacity to engage in cognitive reappraisal, it is possible to conclude that this deficit further facilitates their readiness to aggress. Findings suggest that reappraisers experience and express more positive emotions, by taking an optimistic approach, reinterpreting, and making efforts to deal with emotional distress (Gross & John, 2003). If an individual does not have access to effortful appraisal, then aggressive behaviour is a more likely outcome.

The combined results of Study 3 provide further support for the previously proposed GAM's direct and indirect animal abuse distinction. For example, *frustration*, *fear*, *anger* and *impulsivity* were reported as emotional motivations which facilitated the abusive behaviour. Based on earlier arguments made in Chapter 1, these motivations are reflective of under-regulators who are unable to inhibit impulsive reactions, or control their behaviours, making them more likely to react impulsively and sometimes violently (Roberton, Daffern, & Bucks, 2012). In accordance with this, previous theories including the GAM (Anderson & Bushman, 2002) and strain-theory (Agnew, 1998) suggest that individuals who are mentally exhausted (i.e., unable to regulate their emotions) are less likely to control their aggressive impulses when provoked. Arguably, this is indicative of direct animal abuse, whereby the perpetrator explicitly and directly aggresses towards the animal as an impulsive action (Alleyne et al.,

2015). However, further experimental research is warranted to explore the distinctions between the two outcomes (i.e., direct and indirect animal abuse).

The findings from Study 5 also can also be applied to the adapted GAM proposed in Chapter 1. According to the model, individuals who are mentally exhausted (i.e., unable to regulate their emotions) are less likely to control their aggressive impulses when provoked, which is indicative of direct animal abuse, whereby the perpetrator explicitly and directly aggresses towards the animal (Alleyne et al., 2015). The results from Study 5 evidence that anger rumination increases aggression by interfering with or reducing self-regulation capacity (Whitmer & Banich, 2010). Therefore, individuals who ruminate are less able to inhibit aggressive responding towards animals. When these individuals attempt suppress this emotion reaction, this puts further strain on their cognitive load, which increases their likelihood to aggress impulsively. Although the WaP outcome measure (reaction time) was not designed to distinguish between direct and indirect animal abuse, arguably it is more representative of direct animal abuse as the response is immediate and emotionally driven. Given that the WaP is in early stages of development, the results from Study 5 must be interpreted with some caution. Further validation of the WaP measure as an indicator for animal abuse behaviour is required before reliable conclusions can be drawn.

Finally, Study 6 attempted to distinguish between the two types of animal abusers taken from the literature. The findings from this study provide further support for the distinction between the two routes of animal abuse proposed by the adapted GAM (impulsive vs. thoughtful behaviour). As outlined in Chapter 1, the adapted model proposed that under-regulators are more likely to engage in direct animal abuse as they are unable to inhibit impulsive reactions, or control their behaviour (Roberton, Daffern, & Bucks, 2012). Study 6 found that facets of impulsivity (i.e., non-planning impulsivity) are uniquely predictive of direct animal abuse propensity, which supports this assumption. However, further

experimental research is required to distinguish between the types of abuse and the associated emotion regulation techniques outlined in Chapter 1.

Practical implications of findings

The current research has highlighted some important practical implications in terms of prevention and intervention in animal abuse perpetration. The findings from Studies 1 and 2 indicate that there is a connection between animal abuse and childhood abuse and neglect (specifically emotional). It is therefore important that there is cross-reporting between the veterinary practitioners, police, child and animal protection organisations throughout the UK. In addition to the assisting these organisations in recognising these 'red-flag' behaviours, it is essential that parents and care givers are better educated to acknowledge the behaviours that facilitate animal abuse.

The present research has consistently shown emotional toughness towards animals to facilitate animal abuse behaviour. Through having a cruel disregard or insensitivity towards animals, people evaluate animal abuse as less morally wrong and less harmful for the animal. Thus, it is particularly important that veterinary practitioners, or those responsible for homing animals have specialised training that may equip them with the tools to assess empathy towards animals and consider this when placing animals into homes, or when considering someone's suitability for pet ownership.

The findings from the research also highlights emotion regulation strategies as important influencing factors in the perpetration of aggression towards animals and animal abuse. Specifically, anger rumination, cognitive reappraisal, and suppression have all been found to have differing impacts on animal abuse perpetration under different circumstances. It is evident from this that there is clearly some link between maladaptive emotion regulation or perception of emotions and animal abuse perpetration. Thus, for intervention purposes,

treatment programmes with the intention of addressing aggressive behaviours, such as animal abuse, should maintain their focus on emotion regulation as a primary target in reducing reoffending, as well as empathy (Bowen et al., 2014; Garofalo, Holden, Zeigler-Hill, & Velotti, 2016).

It is important to emphasise that the WaP game is a useful new instrument for the assessment of implicit aggression towards animals. This measure can be administered by researchers to detect impulsive aspects that cannot be introspectively identified easily. The use of this tool opens up the opportunity for a magnitude of lab-based research by which researchers can further examine the underlying mechanisms that facilitate and perpetuate animal-related offending.

Limitations and future research avenues

The studies reported in this thesis have several limitations, which provide interesting avenues for future research. Firstly, it is important to recognise that the current studies are cross-sectional and retrospective in design, with the exception of the experimental studies. As a consequence of this, from these studies we cannot draw firm conclusions on cause and effect without a longitudinal or further experimental research design. The self-report nature of our studies, with the exception of the WaP game, poses further limitations. As previously touched upon, participants could have responded with social desirability bias given that we were asking about their offending behaviour (Finn, 2010). We did administer impression management scales where appropriate to control for this. However, the animal abuser and violent offender groups did not differ on this scale, which was a likely consequence of both groups self-reporting antisocial behaviour (Study 2). So, there is no surprise that we did not see differences between these groups; thus, we may be presenting an under-representation of the behaviour and associated variables.

In an attempt to combat the issues above, a behavioural proxy was designed and validated as an implicit measure of aggression towards animals (i.e., WaP game). Whilst the development of the WaP opens up the opportunity for a magnitude of lab-based research by which researchers can further examine the underlying mechanisms that facilitate and perpetuate animal-related offending, the limitations in its design must also be acknowledged. The WaP rests on the assumption that individuals acknowledge the animal stimuli to be representative of animals. Thus, if participants imagine the stimuli represents a real animal *and* participants choose to repeatedly and rapidly harm that animal, this is presumably psychologically similar to participants actually inflicting harm onto the imagined animal. However, as this was an online representation, there were no real-world consequences of the behaviours. As a result of this, participants may have aggressed more readily to the stimuli. Furthermore, given that the WaP game mimics a conventional *Whack-a-Mole* game, participants may have dissociated any emotional affiliation with the targets and proceeded accordingly. Finally, reaction time measurements taken from the WaP were noted as being indicative of time taken to aggress. Based on this, participants with lower reaction times were considered as faster to aggress towards animals (i.e., more hostile), and those with higher reaction times were considered as being slower to aggress towards animals (i.e., less hostile).

As a means of addressing these limitations, and improving the validity of the WaP game, the following improvements are recommended. Firstly, a further scale should be introduced to gauge the extent participants attributed animal-like characteristics to the stimuli. In doing so, participants who imagined the stimuli to be representative of real animals, and those who did not could be distinguished. Furthermore, participants should be provided with the option to hit targets representative of animals and targets that are not. In doing so, not all participants would be assumed to be faster or slower at aggressing towards animals; and the distinction between those who choose to aggress towards animal targets over

neutral targets, or vice versa, could uncover some interesting distinctions. Nonetheless, assessment of the reliability and validity of this new implicit behavioural measure should continue in future research employing a combination of cross-sectional and longitudinal designs.

Another important limitation of the current research is the use of convenience sampling. The samples used in the development and validation, and experimental exploration of the WaP (Studies 4 and 5) consisted exclusively of university students. In all other studies (Studies 1, 2, 3 and 6), more diverse samples were recruited using the Prolific Academic crowd sourcing platform. Although recruitment of university students in Studies 4 and 5 enabled access to a large sample in which to conduct an initial psychometric assessment and experimental exploration of the WaP, it is inevitably associated with methodological issues. For example, it restricts the external validation and generalisability of these findings. That said, literature generally supports inferences made from student data to the wider public (Wiecko, 2010). Future research using the WaP should conduct field studies in which this measure is administered to general population samples. This would provide stronger evidence of whether the findings reported in this thesis can be replicated outside the lab.

Furthermore, it should be noted that there are gender imbalances in some of the samples utilised for this research. Existing research has shown significant differences between males and females in relation to their perpetration of animal abuse, approval of aggression, and endorsement of the use of aggression (Sanders & Henry, 2017). However, gender was assessed throughout this research and controlled for where appropriate. It would be useful for future research to examine gender differences in the relationship between emotion regulation and animal abuse. Sample size is also a noteworthy limitation for the present studies, particularly Study 5, which has a direct impact on the study power achieved.

Therefore, results with below adequate power should be interpreted with caution and require follow up research with greater sample sizes to address the limited power.

Moreover, in the experimental research conducted in this thesis participants were given the emotion regulation instructions to read. Future research should give these instructions personally to participants to ensure that they are fully understood. It may also be beneficial to provide participants with training on emotion regulation strategies. In doing so, the researcher can not only ensure that participants understand the instructions but that they also know how to implement them. It should also be noted that emotion regulation traits have the potential to interact with emotion regulation as a state. For example, if someone who is normally a suppressor is asked by the researcher to reappraise, their ability to do so will be limited. Whilst we expect that utilising an adequate sample size would mitigate this effect, it might be worth exploring whether emotion regulation as a trait does impact participants' abilities to engage in the different emotion regulation strategies.

Despite the above limitations, this research is the first to explicitly establish relationships between animal abuse and emotion regulatory factors. There is a clear indication that developmental factors, previously associated with dysfunctional emotion regulation, such as childhood animal abuse, and emotional and physical neglect play a role in the facilitation of animal abuse. It might be worth further exploring exactly how these developmental factors are associated with one another, and the exact process by which these experiences contribute to emotion regulation development and consequently, to negative emotional and behavioural outcomes in adulthood.

Given the complexity of the relationship been animal empathy and adult perpetrated animal abuse, this relationship also warrants further exploration. Specifically, the circumstances which facilitate the influence of animal empathy on animal-directed aggression need to be established. Our findings show that it clearly is an important distinguishing factor

of animal abusers, however, given the inconsistencies in our findings, it is evident that this is only true under specific circumstances. In a future study, it would be interesting to explore what moderates the relationship between animal empathy and animal abuse.

It is interesting to observe that people who utilise maladaptive emotion regulation in the form of anger rumination are faster at aggressing towards animals. When utilising suppression, considered as mis-regulation of emotions, this effect is amplified. This finding prompts the question: *Why* does anger rumination amplify aggression towards animals, and *why* does suppression further enhance this effect? Given existing research and theory presented in this thesis, it is plausible to propose that cognitive load is somewhat responsible. As previously discussed, anger rumination increases cognitive load, increasing the magnitude of aggressive responding (Vasquez, 2009). Given that participants are already experiencing an increased cognitive load due to their tendency to ruminate, their aggressive responses are further amplified when instructed to suppress. In a future experiment, it would be interesting to explore whether the relationship between anger rumination, suppression and aggression towards animals holds with convicted animal abusers. Furthermore, cognitive load should be directly assessed to see if this has a bearing on individuals' ability to regulate emotions effectively and under what circumstances.

Furthermore, Study 6 was the first to explore emotion regulation in relation to the distinct types of animal abuse, direct and indirect. No significant differences were found between emotion regulation strategy priming and animal abuse proclivity. However, this null finding, as discussed in the preceding chapter, is accounted for given that most proclivity scales are designed to assess stable traits in participants, therefore manipulating them through experimental techniques can be difficult. Based on this, future research should consider further examining the distinctions between emotion regulation and direct and indirect animal abusers through longitudinal research using convicted animal abusers. Nonetheless, this

research did however provide some clarity over what distinguishes direct animal abusers from indirect animal abusers. Evidently, non-planning impulsivity is important in the perpetration of direct animal abuse proclivity. Previous research has also recognised the positive relationship between animal abuse proclivity and animal abuse behaviour (Alleyne et al., 2015). However, proclivity measures are limited in their ability to make true predictions of the behaviours they are designed to measure. As a result of this, proclivity scales can only offer the likelihood of someone to engage in a particular behaviour, rather than a true reading of previous or potential engagement. Despite this limitation, the results of this study acknowledge that non-planning impulsivity has the potential to facilitate direct animal abuse.

It is important that future research using the WaP continues to experimentally investigate the factors associated with animal abuse perpetration. In further corroborating the predictive validity of this measure, it is necessary for researchers to examine whether the WaP is predictive of implicit aggression towards animals. Conducting such research, within ethical boundaries, would be fruitful in utilising a reliable and valid behavioural measure of animal abuse beyond dependence on self-report methods and proclivity measures. Thus, opening up the opportunity for a magnitude of lab-based research by which researchers can further examine the underlying mechanisms that facilitate and perpetuate animal-related offending.

Summary

This thesis introduced an original application of emotion regulation to the specific context of adult perpetrated animal abuse. Based on the findings from this thesis, we can conclude that emotion regulation has an important role to play in the facilitation of animal abuse perpetration. Whilst this relationship may not be as simple as proposed in Chapter 1, there is clear evidence that people who employ suppression techniques, or lack the ability to engage in cognitive reappraisal are more likely to perpetrate aggression towards animals. Furthermore, it has been evidenced that associated factors, emotional toughness towards animals and anger rumination, could help to explain the circumstances under which animal abuse is carried out. As such, the notion of emotion regulation makes an important theoretical contribution to our understanding of the regulatory pathways that facilitate animal abuse perpetration. The current research has some important limitations which have been acknowledged. However, these limitations highlight exciting opportunities for future research on this topic.

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APPENDICES

Appendix I: Description of film clips

Film title	Length (seconds)	Short clip title (Target Emotion)	Clip synopsis read by participants	Company, year, reference
My Bodyguard	236	Bodyguard (anger)	Ricky is a rather shy and reserved boy. He got a new motorbike from his parents. In the park he meets a group	20th Century Fox, 1980 (Gross &

			of elder pupils. A young man is attacked and beaten up by a group of older pupils.	Levenson, 1995)
Witness	91	Witness (anger)	The Amish live in small communities far from the hectic big cities and reject modern techniques and any form of violence. One day a group of Amish from Pennsylvania drives to town. There they are being stopped by a group of teenagers. A group of Amish is harassed by teenagers.	Paramount Pictures, 1985 (Tomarken et al., 1990)