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Baatz et al.
Human-Animal Interactions (2023) 11:1
https://doi.org/10.1079/hai.2023.0042

CABI Human – Animal Interactions

RESEARCH

The trouble with a cuddle: Families' experiences of supervising interactions between children in middle childhood and the family dog

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Abstract

Background: There is growing scientific interest in the benefits for children of interacting with and engaging with domestic dogs. Since the effects of such pairings on the dog are under explored, this study aimed to explore the lived experiences of family units supervising interactions between children in middle childhood (7–12) and the family dog(s).

Methods: Ten families with at least one child aged 7–12 years old (mean 8.6, SD 1.6) and a family dog were recruited via social media to participate in whole family unit face-to-face semi-structured interviews. Experience of the effects of child-dog interaction (CDI) on the family dog was explored through discussion and reflections of CDIs, the dog's responses, and how these were managed. The interviews were recorded and transcribed verbatim, and thematic analysis using a semantic approach was used to construct key themes.

Results: All families reported that the most positive CDIs were of mutual play or that the dog freely approached the child with the ability to move away. This dynamic is subsequently referred to as dog freedom of choice (FOC). Most discussed experiences of dog aggression or avoidance of the child when FOC was compromised by close physical contact (CPC) from the child, such as cuddling. In most cases, the caregivers and children within the family unit were aware that the dog did not always enjoy such a CPC. However, interviewees recognised that such awareness did not always lead to cessation of the interaction.

Conclusions: While shared play where FOC was supported suggested mutual benefits, CDIs perceived as expressions of affection, for example, hugs towards the family dog, may compromise dog quality of life and raise the risk of dog bites. Furthermore, a caregiver or child with conscious awareness of a dog reacting aversely to compromised FOC is not always a mechanism for ending of the interaction. This may raise questions about the efficacy of education programmes intended to raise the recognition of dog body language to change human behaviour.

Keywords: child-dog interaction, dog welfare, freedom of choice, dog bites, dog behaviour, close physical contact, paediatric dog bites

Introduction

In Proverbs from Plymouth Pulpit, Henry Ward Beecher states that *The dog was created specially for children. He is the god of frolic* (Ward Beecher, 1887). The concept that children and dogs are particularly appropriate unions can best be evaluated by considering the scientific interest in such human animal interactions in recent years (Esposito *et al*., 2011; Rodriguez *et al*., 2021). The benefits of such pairings have been examined broadly with examinations of beneficial outcomes for children such as those in paediatric hospital care (Lindström Nilsson *et al*., 2020) and for therapeutic benefits for children with disabilities or neurodivergences (Hall *et al*., 2019b; Wolan-Nieroda *et al*., 2020). There is even evidence that dog ownership can have microbiome benefits for children in utero (Stenger, 2023). More broadly, the evidence of developmental and educational benefits of enhanced learning outcomes are established, (Reilly *et al*., 2020) specifically reading with children under 16 (Hall *et al*., 2016a), social cognitive development with pre-schoolers (Wenden *et al*., 2021), and even physical activity and motor skills with 4–8-year-olds (Ng *et al*., 2021; Chase *et al*., 2022). Moreover, there is evidence of the beneficial effects of simply owning a dog for children (Hall *et al*., 2016b; Kerns *et al*., 2023).

There is some discussion on the rigour and replicability of such research; sample sizes are often small, methods rely on cross sectional analysis or self-reported data, and randomised experimental models are rarely applied (Maujean *et al*., 2015;

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Submitted: 13 September 2023. Accepted: 13 November 2023. Published: 07 December 2023

Hall *et al*., 2016a; Rodriguez *et al*., 2021). Nevertheless, evidence demonstrates that child-dog interactions (CDI) have considerable benefit for child development in certain settings or contexts. Dog interaction may even be mistaken by some for being presented as a *panacea* for a child's well-being.

Evidence of the beneficial or non-beneficial effects of such behavioural exchanges for dogs is an emerging topic of scientific discussion, albeit less empirically explored (Hall *et al*., 2019a, b). In anthrozoology, it has been called for that the benefits of human-animal dyad interaction in a therapeutic environment should be, to some extent, mutually beneficial and animal welfare held paramount (Glenk, 2017).

However, one field of CDI that, given its occasional catastrophic consequences, does generates substantial, at least media, interest is the occurrence of paediatric dog bites (Mills and Westgarth, 2017). Children are at an elevated risk of dog bites (Jakeman *et al*., 2020; Tulloch *et al*., 2021a; Zangari *et al*., 2021). Furthermore, evidence points to the child's behaviour around a known dog frequently providing an antecedent to sustaining a bite (Hurst *et al*., 2020; Jakeman *et al*., 2020). The interactions between a child and a dog in the home environment are arguably a field rich in under-investigated factors that affect both children and dogs.

Methods

REFLEXIVE STATEMENT

As a parent and dog owner herself, who has a career history in dog bite prevention education and evaluation, the subjective process of the researcher interpreting others' experiences in this field is acknowledged. The primary author is aware of the potential human-dog conflicts and risk of dog bites within the family environment. In many ways the study being partially prompted by recently being asked by her son, "Do dogs like being cuddled?" and struggling to provide an adequate response; to some extent the author is living the context of this study. However, in conducting this exploration, they sought to understand family perspectives of balancing the very comprehensive needs of an entire household with children, especially from the experiences of caregivers who did not have any significant dog behaviour background.

DESIGN

No previous qualitative studies that have investigated families' experiences of supervising interactions in the home between middle childhood aged children and family dogs have been found. Therefore, this study aimed to explore the experiences for families of the effects of their children's interactions with the family dog and perceptions of the subsequent behavioural reactions of the dog to CDI.

Families were encouraged to be interviewed as units, with both adult and child members encouraged to participate in semi-structured interviews. But interviews proceeded if only one caregiver and one child were available or consented to take part.

This study was approved by the University of Salford Ethics Review Panel (ID 1377; April 2021). Participants were provided with comprehensive participant information resources, were ensured anonymity, and had the ability to withdraw at any time.

PARTICIPANTS

The age range of 7–12 or middle childhood was selected in this study as the developmental stage of interest given the high rate of hospital admissions for paediatric dog bites in this range (Tulloch *et al*., 2021a). Furthermore, the age of interest for this study, middle childhood, would fall into the Piagetian "concrete operational stage". At this stage of development, a child's use of logical reasoning and critical thought forms to a rudimentary degree, improving as they increase in age through this stage. In our context of interest they may for example demonstrate understanding that should a provoking experience be applied to a dog, the dog is likely to respond with fear or aggression (Piaget and Gabain, 1930; Piaget, 1951; Inhelder and Piaget, 1966). Therefore, the child's own perspective could be more richly included in the interview process to explore their self-reflection of involvement in such interactions.

Parents and caregivers of children living within the Greater Manchester Metropolitan Borough of Salford, with at least one child aged 7–12 and a family dog, were recruited via parenting groups on social media to participate in whole family unit face-to-face semi-structured interviews. This sample area was selected because of its logistic feasibility with proximity to the university conducting the study but moreover due to the representative nature of the population with regard to demographics. Salford ranks 24th out of 316 among most income deprived local authorities in England (ONS, 2021). Multiple deprivation indicators have previously been evidenced as a characteristic associated with dog bites (Tulloch *et al*., 2021b). Additionally, Salford compares similar to national averages with population age range (GMCA, 2023) and child poverty, with close to national average proportions of children living in low-income homes compared to England (21 and 19%, respectively) (Public Health England, 2019; Department for Work and Pensions, 2022).

The interviews explored the experiences of supervising a single child-dog dyad per interview unit. Families with more than one child in middle childhood were asked to centre their answers around just one child, and multi-dog households were also asked to centre their answers around one dog, whichever the caregiver believed the most relevant to discuss. Similar studies in the field have adopted the same approach (Hall *et al*., 2019a). However, it was acknowledged that the interactions discussed would sometimes not be mutually exclusive for these individuals.

PROCEDURE

Caregiver and child experiences of CDI and both dog and child responses to these were explored through semi-structured interviews with family units. An interview unit consisted of at least one parent or caregiver; in five interview units, there were two, at least one child in middle childhood; in three cases, a sibling outside of the age range of observation; and in one unit, a child within the observed age, but the family focused on the child they experienced as having the most frequent interaction with the family dog. The dog under observation was also present in all cases, which may have aided contextual discussion. See Table 1. Interviews lasted an average of 24.5 min, ranging between 15 and 42 min, and in all cases, were conducted in the main living area of the family homes.

An interview guide consisted of open questions related to how the family perceived the child's observed relationship with the dog, and what interactions and behavioural responses from each confirmed their perceptions: Interviews included open ended questions, for example: "Do you think [dog's name] enjoys interacting with [child's name]? Can you tell me in your words what it is that [the dog's name] most enjoys?" "In your own words how would you describe your [dog's name] responses towards [child's name] when they are interacting?" The discussion was allowed to deviate from such questions in a natural conversational manner.

DATA ANALYSIS

Interviews were transcribed using Otter.Ai online transcription tool and then manually "cleaned" for A.I. errors, such as incorrect regional accent translation. QSR Software NVivo 1.7 was used for subsequent coding and the following iterations. A "theoretical" thematic analysis, utilising a multistage process (Braun and Clarke, 2006) was applied to the analysis. While interview guide questions explored experiences of supervision more broadly, a semantic approach was taken to a particular latent perspective (Braun and Clarke, 2023): namely, the perceptions of the dog's responses to CDIs and perceptions of the dog's emotional valence within them.

Table 1. Interview unit by characteristics.

Interview unit	Child age	Child gender	Caregivers present	Caregiver gender	Child siblings present	Dog breed	Dog age
1	10	Female	2	Male Female	1	Miniature Schnauzer	4
2	11	Male	2	Male Female	0	Cavalier King Charles Spaniel	1
3	10	Female	1	Female	1	"Cavapoo"	2
4	12	Male	2	Male Female	0	Labradoodle	1
5	9	Male	1	Male	0	Mixed breed large	9
6	11	Male	2	Male Female	1	"Sprocker"	1
7	8	Female	2	Male Female	0	Schi Tzu	2
8	8	Male	1	Female	1	Mixed breed large	4
9	7	Male	1	Female	0	English Bulldog	8
10	8	Female	1	Female	0	Staffordshire Bull Terrier	2

Initially, a line-by-line analysis was conducted and an open initial semantic coding list was compiled. The second iteration of the analysis involved forming categories from the open code list by collating the open codes from the initial list (Braun and Clarke, 2006). This stage categorised the observed interactions into those exhibited by the child and those exhibited by the dog. Subsequently, the constructed categorical themes were axially coded. This explored and identified the interrelationships between the categories and concluded the overarching theme (Akinyode and Khan, 2018).

Results

One core theme was constructed following the thematic analysis process, FOC. Three primary themes were constructed as the most frequently occurring and experienced themes by the majority of the interview units.

The three primary themes related to FOC are as follows: (1) child enjoys close physical contact with dog; (2) dog not enjoying cuddle (growl/vocalisation); and (3) child enjoys playing with the dog. A further eleven subthemes interrelated with these primary themes are shown in Fig. 1 and are discussed within the primary theme sections below. These themes were interrelated with the primary themes; however, they were less consistently shared but experienced by at least three interview units.

CORE THEME: FREEDOM OF CHOICE

The core theme was the family's perception of the dog's FOC. Participants' experiences of supervising nearly all CDIs and their subsequent perceived valence were experienced as related to the dogs' ability or inability to express FOC. FOC was related to whether the dog had been observed to have some choice within an interaction and was able to choose the physical area of the space they moved to and, to some extent, how they responded to the child interacting with them. This is in contrast to a dog that does not have FOC and is potentially physically restrained by the child (e.g., held in a cuddle).

Freedom of choice is applied here as a quasi-synonym for agency. There has been considerable application within the anthrozoology field in the last decade of the concept of agency (Špinka, 2019; Mellor *et al*., 2020), which may be seen as appropriate terminology to be applied to this core thematic phenomenon. This is defined as the occurrence of an animal having the ability to cause one's actions and corresponding effects (Silver *et al*., 2021) and sometimes broken into multiple taxonomies (Špinka, 2019). This study posits agency as a problematic term within this companion animal research context, given its vagueness and dependency on interplay with broad and varying social and environmental actors (Emirbayer and Mische, 1998). Given domestic dogs' life circumstances are so heavily restricted by the desires and environment created by its human caregiver, 'Freedom of choice' (FOC) has instead been applied in this article, to denote all occurrences where a dog has some ability to exhibit action, albeit restricted by the needs of the human household.

Webster (2016, p. 16) posits that freedom of choice refers to an animal having the ability to enact its preferences, but within a responsible human caregiver management paradigm; for example, "an animal shouldn't be free to gorge on food until they become ill", and makes an argument for the term to be explicitly included within animal welfare domains such as the five freedoms, an animal welfare framework now largely replaced within animal welfare spheres by the Five Domains (Mellor, 2016; Mellor *et al*., 2020), but nonetheless still the basis for the UK Animal Welfare Act (2006).

While the term freedom of choice, or agency, was not explicitly mentioned by interview units, this construct was described by caregivers noticing that the dog had not been provided with a choice of behaviour in the interaction. This included for example an awareness that the child was restraining the dog's movements in a gesture of close physical proximity including "cuddling", picking up, or moving their body over the top of the dog, which prevented the dog having the ability to choose the behaviours it wanted to express (especially avoidance).

> *When it's on [dog's] terms when he goes into [female child]'s space he's very he's very happy to do it. But he doesn't like it being instigated by her (Interview Unit 7).*

PRIMARY THEME 1: CHILD ENJOYS CLOSE PHYSICAL CONTACT WITH DOG

Most interview units expressed recognition that the type of interaction the child most enjoyed with the dog was close physical contact (CPC). All ten interview units described having supervised

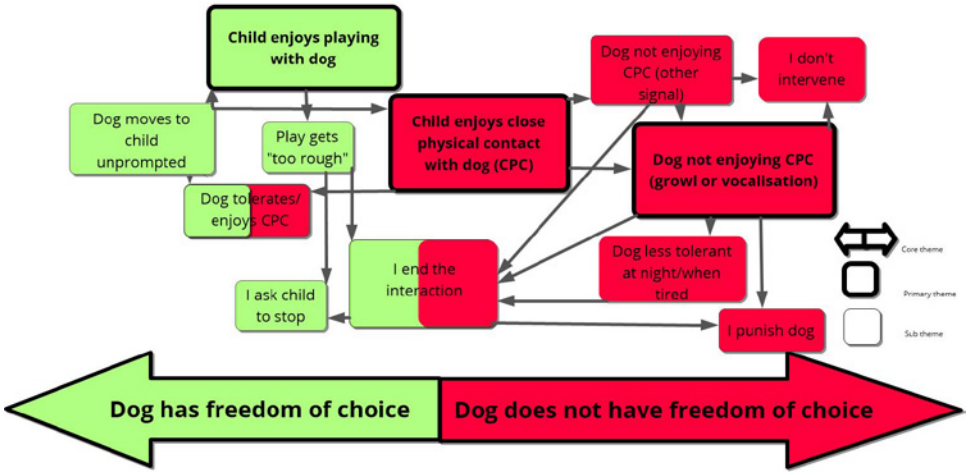

Fig. 1. Thematic map demonstrating core theme, primary themes (bold borders), and subthemes and their interconnected causal directions.

or witnessed such interactions between the child and the dog. Nine units described the interaction their child particularly enjoys with the dog. Cuddling or hugging, while not innate canine behaviour, has been observed in non-human animals (Goldstein and Hall 2021). Goldstein and Hall remind us that Darwin himself (Darwin, 1872) described the close physical contact between mammals such as cats and dogs as an expression of affection. There are empirical indications that dogs and other domestic mammals may habituate to a hug, be conditioned to associate it with a positive stimulus or reward or simply tolerate it (Gee *et al*., 2016). However, the endocrinological response of dogs responding to a cuddle with a human with an observable oxytocin (the "cuddle" hormone) response remains inconsistent, with studies showing differing findings. One study, for example, considering levels of dog oxytocin saw no observable increase in the hormone within differing "cuddle" related conditions (Marshall-Pescini *et al*., 2019). Another saw significant associations of oxytocin levels with the duration of physical touch (Nagasawa *et al*., 2015).

However, it can be concluded that not all hugs are the same, and a child in early or middle childhood instigating a hug with the specific conditions by which a dog would be able to tolerate or enjoy may be more challenging. Moreover, it may be argued that most dog behaviourists would struggle with a response even to adults, explaining whether dogs enjoy CPC, such as hugs. "It depends" could be reasoned as the most suitable response here. The factors "it depends" on, will henceforth be discussed.

Affection and love for the dog were frequently suggested as the drivers of the child's decision to assume a CPC. To quote:

> *I think it's just something else to love for her. I think she just… You know like every night she'll come down and say goodnight to him and give him a kiss and a cuddle. (Interview Unit 10).*

Eight of the ten interview units described such CPC interactions leading to some degree of conflict because the dog did not have FOC in such interactions.

In most cases, a CPC is described as a child physically restraining, lifting, or leaning over the top of a dog's body. Such interactions were generally referred to by interviewees as "cuddles", "picking up", and "snuggling".

In one case, the family simply agreed in explicit terms that their dog did not like hugs.

> *[Female Adult] And sometimes they like go for a hug. And we've had to say like, [dog] doesn't like hugs.*
> *[Interviewer] And doesn't she?*
> *[Female adult] No she doesn't like hugs. (Interview Unit 9).*

However, the explicit prevention of CPC, such as this, was not representative of most interview units.

PRIMARY THEME 2: DOG NOT ENJOYING CLOSE PHYSICAL CONTACT (GROWL OR VOCALISATION)

A further primary theme that was commonly experienced following a CPC was recognition that the dog was not enjoying the CPC, which in many cases was indicated to caregivers as a dog vocalisation such as a growl. In most cases, notably, the language used to describe the vocalisation diminished the behaviour with prefixes such as "a minor growl", "a gentle growl", etc.

> *She'll indicate if she doesn't want to do something. Often by like…, not a full on growl, but a GRRRRRRRR, and then she'll disappear off if that's the case. (Interview Unit 2).*

As in the above quote, a growl or vocalisation was observed as the most common means by which a caregiver or child noticed that the dog was not enjoying the CPC, and a precedent for an interaction ending, which in most cases resulted in interaction cessation. A further subtheme related to other experiences in which nonverbal signs, such as avoidance or other physical displacement behaviours exhibited by the dog, were acknowledged by caregivers.

> *Yeah sometimes she'll [sic] tries to wriggle out of her, and then she'll still keep hold of her. And then she just looks at me…. So that's when she'll look at me as if say, I've tried to get away mom…. I've given her a little growl. … She's not listening. Will you take me away? (Interview Unit 3).*

In multiple cases, caregivers demonstrated recognition of stress signals other than aggressive behaviours in their dogs. Such observations of dog body language in most cases formed the conclusion for them of the dog having compromised FOC.

> *because he I think [mc] just wants to play like sometimes when [dog] doesn't want to play, he'll try and grab him, but [dog]'s just trying to like get out. It's just like he's saying leave me alone (Interview Unit 8).*

In some such cases, family units reported noticing that it was more common at night or when the dog was tired that it became clear that the dog was not enjoying a CPC. Sometimes, this was combined with a child entering a dog's bed. Alternatively, when the dog was perceived to be tired and resting in a comfortable location, such as a sofa.

> *So it's usually around sort of sleep and rest. So if she's there and like everyone else is on settees and it's full and they've nowhere to*

sit. They'll try and move her. They're like, "get down." She won't get down. So then they'll go to pick her up and she'll just go GRMMM. She doesn't even look at them. It's just a kind of MMM, so she just picks her up anyway, and puts her on her knee and then she just settles back down. (Interview Unit 3).

While almost all family units expressed recognition of such occasions of compromised FOC and the dog's averse responses to such events, the caregivers' responses to such CDIs varied considerably.

Subthemes relating to this were "I end the interaction" (9 interview units; 1, 2, 3, 4, 5, 6, 8, 9 and 10), "I ask the child to stop" (7 interview units; 1, 2, 3, 5, 6, 7 and 8), "I punish the dog (3 interview units; 1, 7 and 8)" or "I don't intervene" (3 interview units; 3, 7 and 10).

Some caregivers would end the interaction upon recognising that the dog was not enjoying the interaction due to a growl or vocalisation, which also occurred in instances of play that the caregiver felt had become less beneficial and instances of the dog not enjoying CPC. This took the form of separating dogs and children in most cases.

If any indication that it was it was say a step up. And she was really growling. And I couldn't get them to separate for whatever reason, you know, he was continuing to try and grab her; he wasn't stopping. I would send one out. You know, either I would get up and take the dog out or I'd tell her to go out or I'd send him upstairs (interview Unit 2).

Some punished dogs by introducing positive punishment stimuli (McConnell, 1990), for example, by shouting at the dog or sending them away. No family units discussed or disclosed using physical punishment.

Whenever he has I go like "that's it, get downstairs, get down" normally it's on the the bed when he's tired or something "Get down, get down" like this and then he goes down and he makes such a noise. (Interview Unit 7).

In other cases, the caregivers verbally asked or told the child to end the interaction.

You know when he doesn't want to play. And he'll let it out like a soft growl and I'm just like "leave him, leave him. (Interview Unit 8).

In some cases, the caregiver was aware that the FOC was compromised, and the dog demonstrated aversion to compromised FOC, but did not intervene.

I watch him, I do wonder… I think is he enjoying that? When she can be like, Ohhhhhhhh, like hugging him and you know, mwa mwa mwa mwa kissing him and stuff and he kind of… And I've noticed him yawn then. But he doesn't do anything else. He just kind of sits there (Interview Unit 10).

Multiple caregivers expressed such occasions of being unable to prevent the child from ending the contact or tending to choose to leave the child to continue the interaction as they were relatively helpless in the situation due to the child's determination and repeated attempts to continue.

[Child] grabs her and turns her upside down [like a baby]
She will take her and play with her. Even if she's tired and sleepy. She doesn't want to be touched. She'll just…. if she wants to touch her she just will. [_] I honestly I am surprised she hasn't been bitten by her by now, with the way that she just…. She'll just take her when she wants her (Interview Unit 3).

Parents generally felt confident to recognise non-verbal signs their dog was not happy,

I can definitely with her [read dog body language]. Probably not so much with other people's, but I can 100% with her (Interview Unit 2).

And in some cases doubted their child's ability to do so.

[H]e's the one that's most likely to get in her face when she doesn't want it because he's not picking up on her signs yet (Interview Unit 2).

However on some occasions, where the child was able to recognise stress signs, the child having recognition of the dog's aversion did not always prove to be a precursor for ending an interaction for the child themselves.

[Female Child]: If she growls I'll just go shhhh…. (Interview Unit 3).

While CPC was frequently the antecedent for compromised FOC, in some cases, this was observed when a child approached the dog to initiate play at a time the caregivers believed the dog did not want to play. Play is discussed in more detail below as a primary theme.

A clear distinction, however, must be made between play in which the dog had FOC and play in which this was compromised with the dog not being provided a choice in the interaction. In the latter cases, the response from the dog was similar to that of unwanted CPC, with a vocalisation or other aversive reaction such as avoidance.

Just [mc] will come in, call up, want to play. He will put his face near him and he'll let him know when he doesn't want to play he just goes Grrrrrrrr. But I've gotta remind him I've gotta go "[mc] he doesnt want to play, leave him" (Interview Unit 8).

Equally and on the more agreeable side of the FOC spectrum, not all examples of CPC were perceived to be unwanted by the dog, with families experiencing occasions in which the dog freely approached the child to initiate an interaction: therefore, the dog experienced as utilising its FOC. Such instances of the dog freely choosing to move to the child for interaction of some form were experienced in all ten of the interview units. In most cases, this was an indication for caregivers that the dog did enjoy interacting with the child sometimes, or ultimately "like" the child, despite the aforementioned conflicts.

She just craves it all, just [sic] like us. She'll go to the kids for cuddles, strokes play, throwing a ball up in the air and catching it with plushy toys, like keep away, erm… Tug. All sorts of things, really. (Interview Unit 6).

Some notably also experienced the dog either tolerating a cuddle with no signs of aversion or aggression or, in some cases, perceived the dog to actively enjoy CPC with the child.

So if he's, if he's sat down, she'll, she'll come and sit with him. He came in the door from school before and she went straight up and she does this thing where she's [sic] trying to sit but she's so excited that she's half sit, half lay, half up. And she's just waiting for him to stroke her. And then he picked her up and she was sort of nuzzling into him. (Interview unit 2).

PRIMARY THEME 3: CHILD ENJOYS PLAYING WITH DOG

The final primary theme to discuss finds us revisiting Beecher's 1887 Plymouth Pulpit quote describing the natural frolic-driven connection between dogs and children. The observation of mutual play was recognised as another favourite interaction of the children, and crucially as interactions in which the dog was believed to have FOC.

Given the compromised quality of life consequences of the previously explored themes, it is arguably poignant and notable that such experiences of mutually beneficial interactions were regularly described by participants.

> *She like lights up when she gets the interaction from the children (Interview Unit 9).*

In many cases participants inferred the cause for play being so suited to children in the household was due to the children being altogether "better" at playing with their dog. Caregivers recognised that life as an adult presented barriers to having the opportunity to play with their dogs, which children did not have.

> *I think as a grown up at the back of your mind, you're always thinking I can throw the ball for five minutes. But then I'm gonna have to go and put tea on. Or I'm gonna have to go and do the dishwasher. And [Male Child] won't tire of throwing that ball. As long as he keeps bringing it back. (Interview Unit 5).*

Caregivers and children themselves frequently observed how their dog would freely approach the child in order to initiate play, again confirming the core theme in this study that the benefits of a CDI interaction for a dog depended heavily on their level of choice in the interaction.

> *[Female Child]: She always comes over to me because I'm always the one who likes to play. [sic]. Last night, I was holding her toy for her. And she was pulling it and then when I let go, as she was pulling it, she just she just like grabbed it and put it back in my hand [laugh]. She wanted me to keep on playing! (Interview unit 3).*

Play interactions, albeit beneficial to the family dogs and in many cases the children, were ended by some caregivers after being perceived as too excitable or physical, and the caregiver became concerned about or witnessed the child sustaining a minor injury.

> *But when he came [dog] was a bit rough with [Male Child] and he was alright with him because he was used to dogs. But the rescue centre sort of said that's a bit too rough so I do have to split it up after a bit. (Interview Unit 8).*

Parallel to the primary themes and subthemes related to CPC, caregivers varied in their responses to this unwanted interaction by choosing to end the interaction as above or asking the child to stop.

Discussion

A key strength of this study was the novelty of this approach. While the field of CDI is comprehensive with intervention testing (Shen *et al*., 2016) and dog bite research (Jakeman *et al*., 2020), it is believed that this study is the first qualitative approach to explore families' own experiences of supervising middle childhood aged children and their family dogs. This study also broadened the scope of the experience by actively involving the children themselves in discussions with their caregivers. It is posited that this lends a unique perspective to the emerging field of interest of dog welfare and how to improve it in the context of CDI.

Undeniably this study has certain limitations that are acknowledged by the authors. Interviews were conducted within one metropolitan borough only; therefore, these experiences were not intended to be presented as representative to families not within this area. Additionally, limitations of the social media sampling approach may have been affected by selection bias (Benedict *et al*., 2019). There was also some observable homogeneity in the recruited sample with a disproportionate representation of younger dogs and input largely from females as opposed to male or other gender adult caregivers. Information provided by participants of family and social dynamics was limited, and therefore information about ethnicity, family residential dynamics, and caregiver to child relationships and other personal-social characteristics was not sought or provided.

Another specific point of consideration of this study's scope limitation is that this study does not include any exploration or objective assessment of children or caregiver's ability to recognise dog body language. In this qualitative approach, emphasis was instead placed on participants' personal interpretations and perceptions of CDIs and their chosen courses of action as a result of these. Therefore, conclusions are not made in this study as to human participant's explicit ability to recognise or interpret a range of dog body language.

Further research examining this area could utilise a wider geographical sampling location, with varying social demographics included in the recruited sample, such as socioeconomic status, ethnicity, caregiver role, and dog characteristics.

CONCLUSION

It was clear from this study that both CPC and play were important interactions defining the relationship between middle childhood aged children and family dogs. FOC was generally exhibited by the dog during play. In most cases, such interactions were perceived as mutually beneficial to both children and dogs, with the children within the family units described as the family member most suited for these activities.

Conversely, FOC was frequently compromised during incidents of CPC in which the child was cuddling, picking up, or instigating a similar close physical interaction with the dog in which the dog had not exhibited any choice.

It can be argued that CDI that are intended as expressions of affection towards the family dog such as CPCs may raise the risk of dog bites and compromise the quality of life for family dogs by increasing stress.

A caregiver or child who consciously believed their dog to be not enjoying or displaying signs of stress prompted by a close physical interaction did not always prove a mechanism for a caregiver ending the interaction. However, the interactions frequently ended when the dog was growling. This suggests the need for further human psychological investigation and research into why such interactions do continue despite human awareness that the dog is not enjoying them.

Adopting a meta-perspective on the themes constructed in this study, it is suggested that such findings provide a richer lens for application in the field of CDI and dog bite prevention following multiple studies examining parental supervision of CDI, in which it is concluded that parents and caregivers often fail to recognise subtle dog behaviours that may indicate stress or an antecedent to aggression (Arhant *et al*., 2016), and others in which it is clear children fail to recognise certain dog facial or body language (Aldridge and Rose, 2019; Correia-Caeiro *et al*., 2023; Törnqvist *et al*., 2023).

Whilst the methodology was unable to evidence dog behaviours indicating stress that may have been *missed* by families, it was consistently indicated within these data that in all cases caregivers, and in many cases the children themselves, demonstrated recognition of what they believed to be stress or their dog not enjoying an interaction due to restricted FOC.

The desired outcome of many dog welfare NGO and dog bite prevention initiatives to instigate earlier cessation of such interactions to prevent dog bites and improve dog quality of life is therefore likely to require more than just children with improved body language recognition.

Finally, given its underpinning of all experiences explored in this study, a recommendation is proposed that FOC as a construct

should be placed more front and centre within CDI education efforts within a broad systems approach.

CONFLICT OF INTEREST

The authors declare no conflicts of interest. The funders had no role in the study design; collection, analyses, or interpretation of data; writing of the manuscript; or decision to publish the results.

ETHICS STATEMENT

The authors confirm that the research meets any required ethical guidelines, including adherence to the legal requirements of the study country.

ACKNOWLEDGEMENTS

The authors would like to thank all participants of this study. We are grateful to Dr Robert Christley for providing feedback on an earlier iteration of the thematic analysis.

AUTHOR CONTRIBUTIONS

All authors contributed equally to the development of this article.

FUNDING STATEMENT

This study and the corresponding author's PhD studentship is funded by Dogs Trust.

DATA AVAILABILITY STATEMENT

The data presented in this study are available upon request from the corresponding authors. The data in full are not publicly available due to ethical approval of participant informed consent, which included interview units being informed that we would remove all personally identifiable information before sharing data with other universities and/or research institutions.

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